END OF YEAR 2001 THROUGH YEAR 2006
CLOSURE / CLOSEOUT PLAN

CHINO MINES

Prepared For: **Chino Mines Company**

Hurley, New Mexico

VOLUME III

APPENDICES

A, B, C, D

March 2001

To be resubmitted to the State of New Mexico within 5 years to update compliance requirements

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CHINO CLOSURE/CLOSEOUT
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CHINO CLOSURE/CLOSEOUT
APPENDIX A

I. ACRONYMS

ABA = Acid-Base Accounting
AGP = Acid Generating Potential
AMD = Acid Mine Drainage
ANFO = Ammonium Nitrate Fuel Oil
ANP = Acid Neutralizing Potential
AOC = Administrative Order of Consent
AST = Aboveground Storage Tanks
BLM = Bureau of Land Management
BMI = Borrow Materials Investigation
CCP = Closure/Closeout Plan
CCWP = Closure/Closeout Work Plan
CERCLA = Comprehensive Environmental Response, Compensation and Liability Act
CGWCS = Comprehensive Groundwater Characterization Study
COC's = Constituents of Concern
DBS&A = Daniel B. Stephens & Associates, Inc.
DP = Discharge Plan
EC = Electrical Conductivity
EIS = Environmental Impact Study
EPA = Environmental Protection Agency
GAI = Golder Associates, Inc.
GPS = Global Positioning System
HAP = Hazardous Air Pollutant
HDPE = High Density Polyethylene
HELP = Hydrologic Evaluation of Landfill Performance model
IARIBR = Investigation Area Remedial Investigative Background Report
IU = Investigation Unit
JS&A = John Shomaker and Associates
MA = Mineral Assemblage
MMD = Mining and Minerals Division
MSHA = Mine Safety and Health Administration (U.S. Department of Labor)
NA = Not Available
NMED = New Mexico Environment Department
NMMA = New Mexico Mining Act
NMWQCC = New Mexico Water Quality Control Commission
NOAA = National Oceanographic and Atmospheric Administration
NPDES = National Pollutant Discharge Elimination System
PLS = Pregnant Leach Solution; i.e., liquor carrying copper ore
PMC = Preliminary Materials Characterization
PMLU = Post Mining Land Use
POO = Mine Plan of Operations

RCRA = Resource Conservation and Recovery Act
RUSLE = Revised Universal Soil Loss Equation
SCS = Soil Conservation Service
SMC = Supplemental Material Characterization
SPCC = Spill Prevention, Control, and Countermeasure
SPLP = Synthetic Precipitation Leaching Procedure
SSE = Self-Sustaining Ecosystem
SWPPP = Stormwater Pollution Prevention Plan
SX/EW = Solution Extraction/Electrowinning; i.e., plant for extracting copper
TBD = To Be Determined
TDRW = Tailings Decant Return Water
USBR = United States Bureau of Reclamation
USDA = United States Department of Agriculture
VOC = Volatile Organic Compound
WCC = Woodward Clyde Consultants
WEPP = Water Erosion Prediction Project
XRD = X-Ray Diffusion

II. LEXICON AND TECHNICAL ABBREVIATIONS

- alluvial fan = a fan shaped alluvial deposit formed by a stream where its velocity is abruptly decreased such as at the foot of a ravine at a hill's base
- alluvium = unconsolidated sedimentary material (including clay, silt, sand, gravel and mud) deposited by flowing water
- aquifer = a zone, stratum, or group of strata acting as a hydraulic unit that stores or transmits water in sufficient quantities for beneficial use
- berm = an earthen structure, generally at least a few feet high, which acts as a barrier to redirect the flow of traffic or water
- bgs = below ground surface
- closeout plan = a plan that describes actions to be taken following the cessation of active mining activities that will allow for the establishment of self-sustaining ecosystem or post-mining land use, consistent with the requirements of New Mexico Mining Act Rule 5
- closure plan = a plan that describes actions to be taken following the cessation of active mining activities that will result in the long-term stabilization of the site and maintenance of environmental standards, as applicable
- detention ponds = structures constructed by excavation and/or building an embankment whose purpose is to retain water and allow for settlement of fines (silt and grit) and reduction in turbidity
- ephemeral stream = a stream or portion of a stream or wash that flows only in direct response to precipitation or snow melt. Such flow is of relatively short duration
- erosion = the wearing away of the land surface by running water, wind, ice, or other geological agents, including gravitational creep
- evapotranspiration = the process of transferring moisture from the earth to the atmosphere by evaporation of water transpired (given off) by plants

- financial assurance calculation = net present cost of scheduled and operating and maintenance cost estimates
- fluvial = of or relating to a river or stream
- gpd = gallons per day
- ground cover = soil layer placed over stockpiles and tailing dams
  - fine grain size is susceptible to movement by wind
  - coarse grain size is susceptible to movement by water
  - very coarse grain size is susceptible to movement by gravity (i.e., raveling)
- habitat = the natural environment of a plant or animal, including all biotic, climactic and soil conditions, or other environmental factors influencing living conditions
- hazardous waste = waste material exhibiting one or more of the following characteristics: ignitability, corrosivity, reactivity, and/or toxicity as defined by the Federal Resource Conservation and Recovery Act
- heavy metals = group of elements, usually required by organisms in trace amounts, but may be toxic in higher concentrations; includes lead, mercury, molybdenum, nickel, copper, cobalt, chromium, iron, silver, etc.
- inert = a substance that is considered chemically unreactive; not affecting any substance it comes in contact with
- interstitial = occupying the spaces between sediment particles
- leaching = a natural or artificial process through which one or more constituents of a solid are solubilized. The metal ions in an aqueous solution are called a "pregnant" solution
- mesic = characterized by requiring a moderate amount of moisture
- mil = 0.001"
- performance bond = financial guarantee to ensure that the activities described in the CCP can be adequately carried out in the event of forfeiture
- permeability = the property or capacity of a porous rock, sediment, or soil for transmitting a fluid; it is a measure of the relative ease of fluid flow under unequal pressure
- perennial stream = a stream continuing throughout the year
- pH = measure of hydrogen ion concentration; i.e., measure of acidity
- piezometric surface = an imaginary surface coinciding with the hydraulic pressure level of the water in a confined aquifer, or the surface representing the static head of ground water and defined by the level to which water will rise in a well or vertical pipe
- plant community = a vegetation complex unique in its combination of plants that occurs in particular locations under particular influences
- ppm = parts per million (by weight of constituent)
- raffinate = an acidic process water used to extract copper from ore and derived from recycled water from the SX/EW process
- rills = small channels or grooves made by erosional processes
- riprap = a layer of broken rock dumped or placed together irregularly to prevent erosion
- sediment = earth material transported, suspended or deposited by water
- sloped surfaces = those surfaces with a base/height ratio steeper than 7

  - outslopes are those surfaces sloping away from the top surface of tailing ponds and stockpiles
  - outslope crest is the junction of the top surface with the outslope surface
  - outslope toe is the junction of the bottom of the outslope surface with natural terrain
- tailing = material left after extraction of metal or mineral
- TDS = total dissolved solids = fine material (with a diameter smaller than a few hundred micrometers) that is suspended in liquids such as water
- vadose = located above the water table
- water (domestic source) = surface or ground water that can be treated to potable quality
- water (ground) = the interstitial water that occurs in situated earth material and which is often capable of entering a well in sufficient amounts to be used as a supply
- water (impacted) = water which comes in contact with disturbed area and as a result does not meet the requirements for irrigation water, surface water or ground water
- water (irrigation) = water suitable for artificial application to assist in growth of vegetation
- water (non-impacted) = water which comes in contact with disturbed area but which does not change significantly
- water (potable) = suitable, safe or prepared for drinking
- water bars = erosion control measure for roads
- watershed = entire land area that contributes waters to a particular drainage system
- weathering = processes whereby larger particles of soils and rock are reduced to finer particles by wind, water, temperature changes, and plant and bacterial action
- wind fetch
  - upwind fetch = distance wind travels over open ground upwind of facility
  - downwind fetch = distance wind travels over open ground downwind of facility

III. KEY TERMS

The following definitions explain the terms and concepts used to characterize the facilities for conceptual design. The forms that follow summarize the information used in conceptual design.

Location Characteristics

Surface Water

Upstream: watershed with the potential for runon

Downstream: drainages or channels that would accept runoff from the facility

Wind (assuming prevailing winds are from the west)

Upwind fetch: distance wind travels over open ground upwind of facility
- Blocked - facility is directly in wind shadow of prevailing winds
- Limited - facility is within ~ 500 ft. of hills or other upwind obstruction
- Med - facility is within ~ 2,000 ft. of hills or other upwind obstruction

Downwind fetch: distance wind travels over open ground downwind of facility
- Blocked - wind is immediately blocked downwind of facility
- Limited - hills or other downwind obstruction exist within ~ 500 ft. of facility
- Med - hills or other downwind obstruction exist within ~ 2,000 ft. of facility

Physical Characteristics

Grain size:
- Fine - susceptible to movement by wind
- Coarse - susceptible to movement by water
- Very coarse - susceptible to movement by gravity (e.g., raveling)

Leach Status

Stockpiles that have been or currently are being leached are considered leach stockpiles. All other stockpiles are considered non-leach, overburden or waste rock stockpiles.

Elevation Reference

ft msl = feet above mean sea level

Size and Dimension Definitions

The size and dimension definitions are presented according to the facility subgroups: outslopes, top surfaces, and perimeters. Note that open pit sideslopes are not termed outslopes, although the definitions for outslopes are equally applicable.

Outslopes (Tailing Ponds and Stockpiles) and Sideslopes (Open Pits)

Segment (no units): A portion of an outslope with uniform characteristics (i.e., uniform height, slope length, and slope angle). Segments are termed interior if they drain onto other facilities or exterior if they do not drain onto other facilities (indicated by (i) or (e), respectively, on the forms).

Crest elevation (feet above msl): Average elevation along the crest of an outslope segment.

Toe elevation (feet above msl): Average elevation along the toe of an outslope segment.

Height (feet): Vertical distance (i.e., difference) between crest and toe elevation

Base (feet): Length (i.e., horizontal map projection) between points of measurement for toe and crest elevations

Slope length (feet):

$$\text{Slope Length} = \sqrt{\text{Height}^2 + \text{Base}^2}$$

Slope (H:L): Base/height (e.g., 2.5 represents 2.5 ft horizontal to 1 ft vertical)

Slope angle (degrees): Tan^{-1} (height/base)

Surface area (acres): Area of an outslope segment, corrected for the horizontal map projection.

Top Surfaces (Stockpiles)

Surface slope angle (%): assumed to be flat or irregular

Surface area (acres): Area of a top surface. No correction from the horizontal map projection is used because such a correction is negligible for gently sloping surfaces.

Top Surfaces (Tailing Ponds)

Crest elevation (feet above msl): Elevation on top of tailing pond at tailing pond crest

Low point elevation (feet above msl): Elevation at low point on top of tailing pond

Vertical drop (feet): Vertical difference between toe of crest elevation and low point elevations

Horizontal length (feet): Length (i.e., horizontal map projection) between points of measurement for crest and low point elevations

Surface slope angle (H:1): Horizontal length/vertical drop (e.g., 2.5 represents 2.5 ft horizontal to 1 ft vertical)

Surface slope angle (%): (vertical drop/horizontal length) * 100

Surface area (acres): Area of a top surface. No correction from the horizontal map projection is used because such a correction is negligible for gently sloping surfaces.

Pit Bottoms (Open Pits)

Pit bottom area (acres): Area for the small, planar area at the bottom of an open pit. No correction from the horizontal map projection is used.

Top Surface Perimeters (Tailing Ponds and Stockpiles)

Runon perimeter (feet): Perimeter length along a top surface that may be subject to runon from adjacent hillslopes. Includes possibly blocked channels.

Runoff perimeter (feet): Perimeter length along the top edge of an outslope (i.e., the edge of the top surface) that may be subject to runoff from the top surface.

Neutral perimeter (feet): Perimeter length along the edge of a top surface that is subject to neither runon nor runoff.

Outslope Perimeters (Tailing Ponds and Stockpiles)

Interior toe perimeter (feet): Perimeter length along the toe of an outslope which drains onto another facility.

Exterior toe perimeter (feet): Perimeter length along the toe of an outslope which does not drain onto another facility.

Crest Perimeters (Open Pits)

Pit crest perimeter (feet): Perimeter length around the circumference of the crest of the open pit.

CHINO CLOSURE/CLOSEOUT
APPENDIX B

M3 DRAWINGS

Drawing Number	Title
Chino-00	Location Map
Chino-01	Property Plan with Discharge Permits Tailing, Piles, Pits, and Facilities
Chino-02	Site Plan Tailing Ponds Drainage
Chino-03	Plan Tailing Ponds 1 and 2
Chino-04	Plan Tailing Ponds B, C, and 4
Chino-05	Plan Tailing Ponds 6 East and 6 West
Chino-06	Plan Tailing Pond 7
Chino-07	Tailing Ponds Spillway Profiles
Chino-08	Tailing Ponds Spillway Construction Details
Chino-09	Tailing Ponds Outslope Surface Runoff Details
Chino-10	Tailing Ponds Connecting Channels
Chino-11	Site Plan – Proposed Plan Stockpile Area
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Drawing Number	Title
Chino-13	Plan – Proposed Plan South Stockpile
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Chino-15	Stockpiles/Tailings Detention Ponds
Chino-16	Plan Water Treatment/Handling
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Drawing Number	Title
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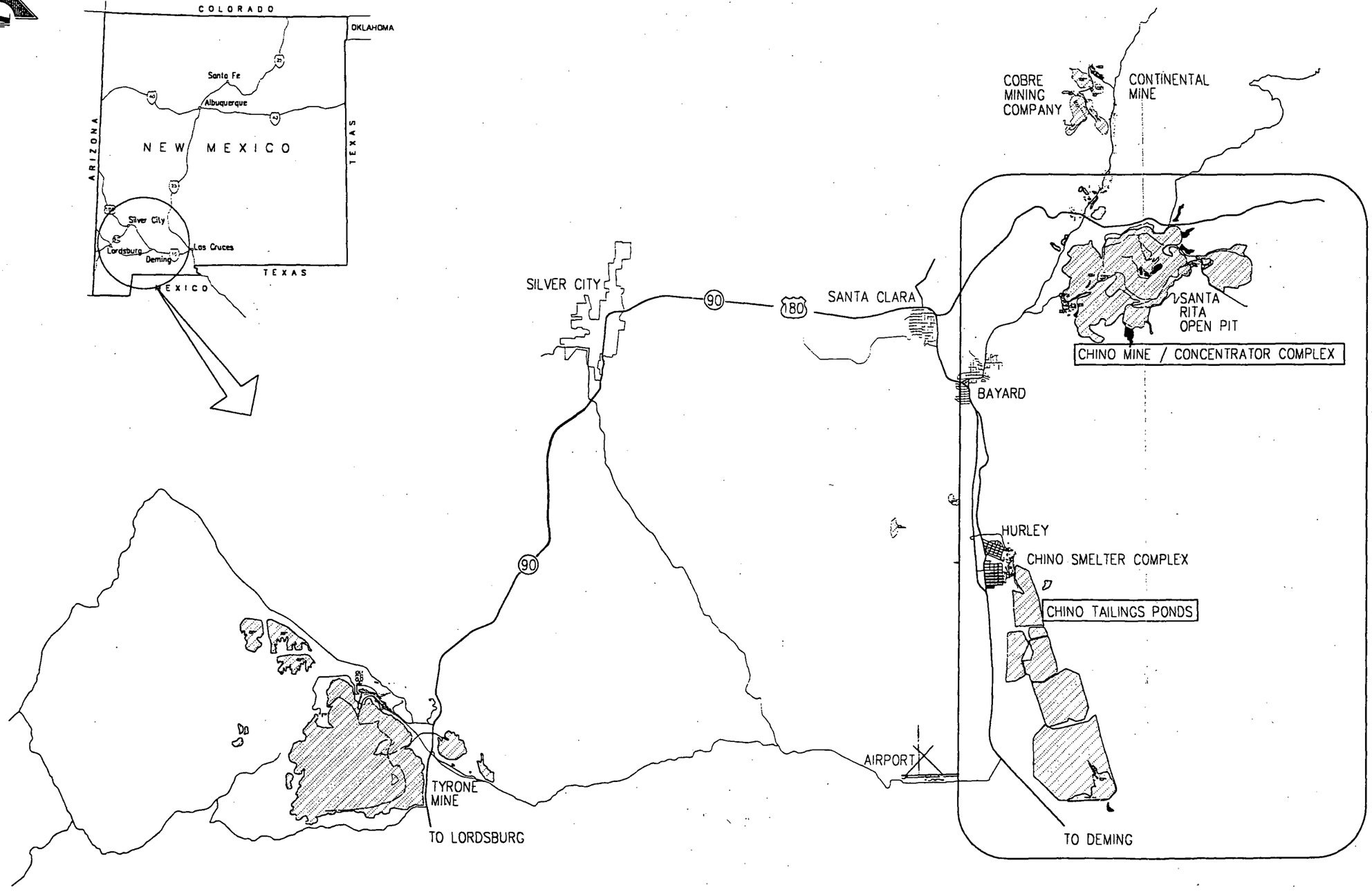
Chino-29	Site Plan Water Treatment/Handling
Chino-30	Site Plan – Irrigation System Water Treatment/Handling
Chino-31	Property Plan with PMLU and Waiver Area Designations



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CHINO CLOSURE / CLOSEOUT LOCATION MAP

CHINO-00

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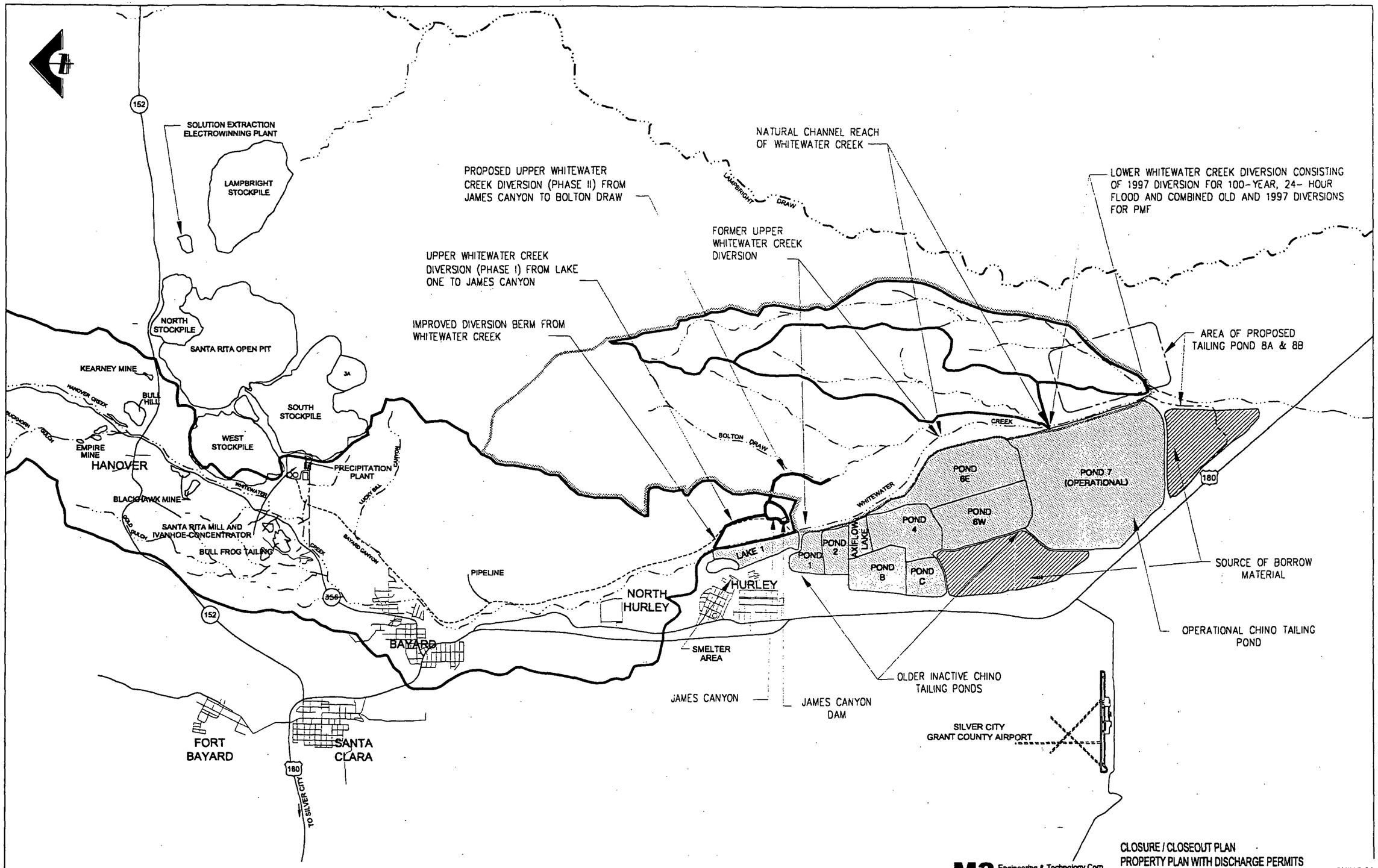

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CLOSURE / CLOSEOUT PLAN
PROPERTY PLAN WITH DISCHARGE PERMITS
TAILING, PILES, PITS & FACILITIES

CHINO-01

AREA OF PROPOSED TAILING POND 8

DEGRITTING BASIN & POND

Whitewater Creek

WHITEWATER CREEK

Old Lower Whitewater Creek Diversion

Whitewater Creek

CONNECTING CHANNEL

Bolton Draw

SOURCE OF BORROW MATERIAL

TAILING POND 6 EST

TAILING POND 7

AREA OF PROPOSED TAILING POND 8

Whitewater Creek

TAILING POND 6 WEST

TAILING POND, 4

AXIFLO LAKE

LAKE ONE

TAILING POND 1

TAILING POND 2

SPILLWAY

TAILING POND B

TAILING POND C

SPILLWAY

CONNECTING CHANNEL

SOURCE OF BORROW MATERIAL

FIBER OPTIC TELEPHONE CABLE US WEST

U.S. 180

NMD

Note: Map coordinates are based on the New Mexico State Plane (NMSP) NAD 83, West Zone

SHEET FLOWS

0 2000 Feet

Scale 1" = 2000'

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CHINO CLOSURE / CLOSEOUT
SITE PLAN
TAILING PONDS DRAINAGE

CHINO-02

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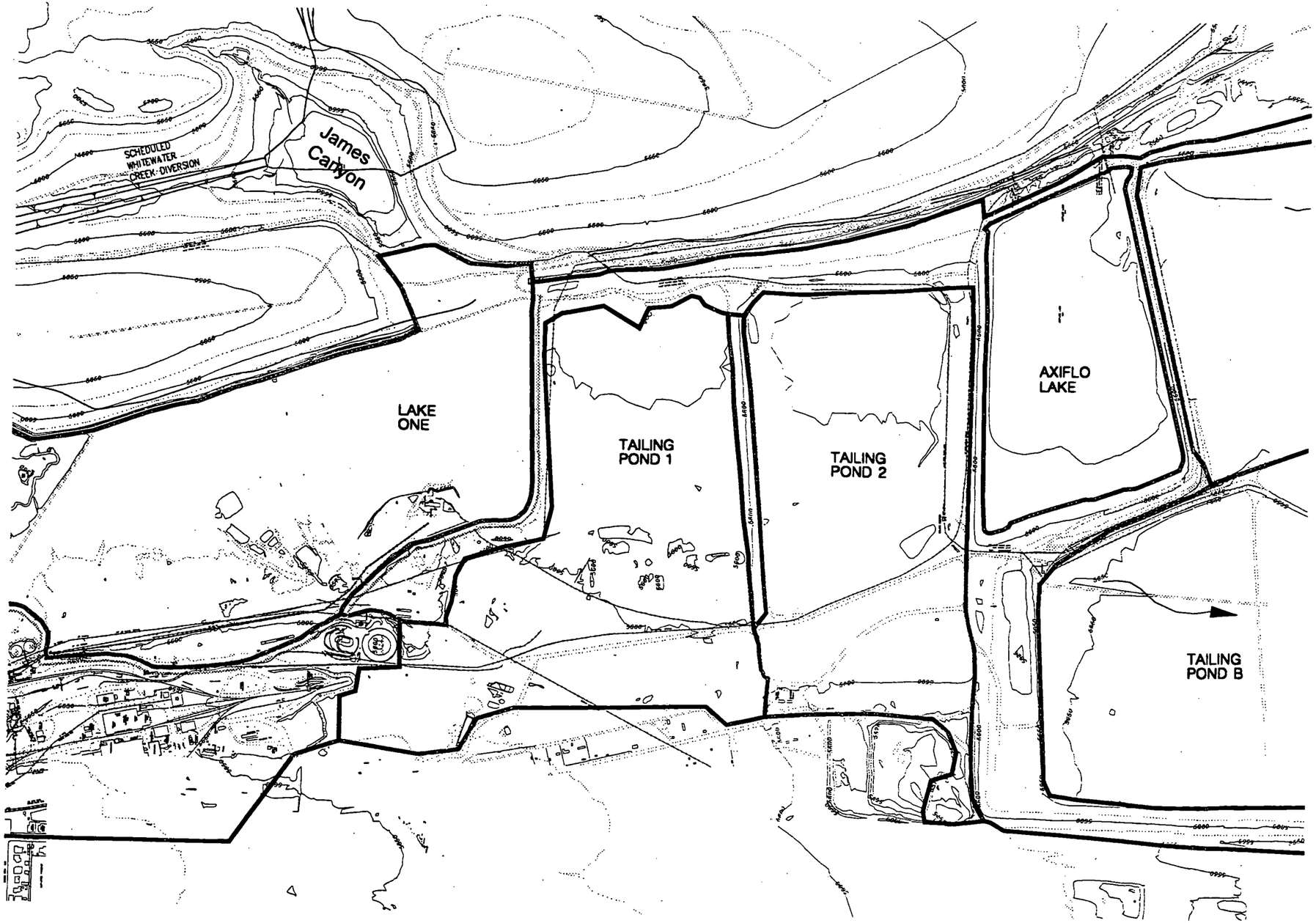
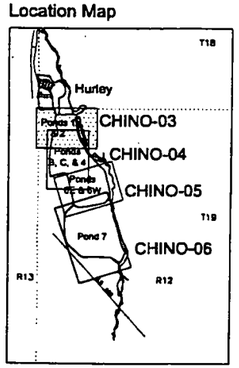


Location Map



0 800 Feet
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Note: Map coordinates are based on the New Mexico State Plane (NMSP) NAD 83, West Zone

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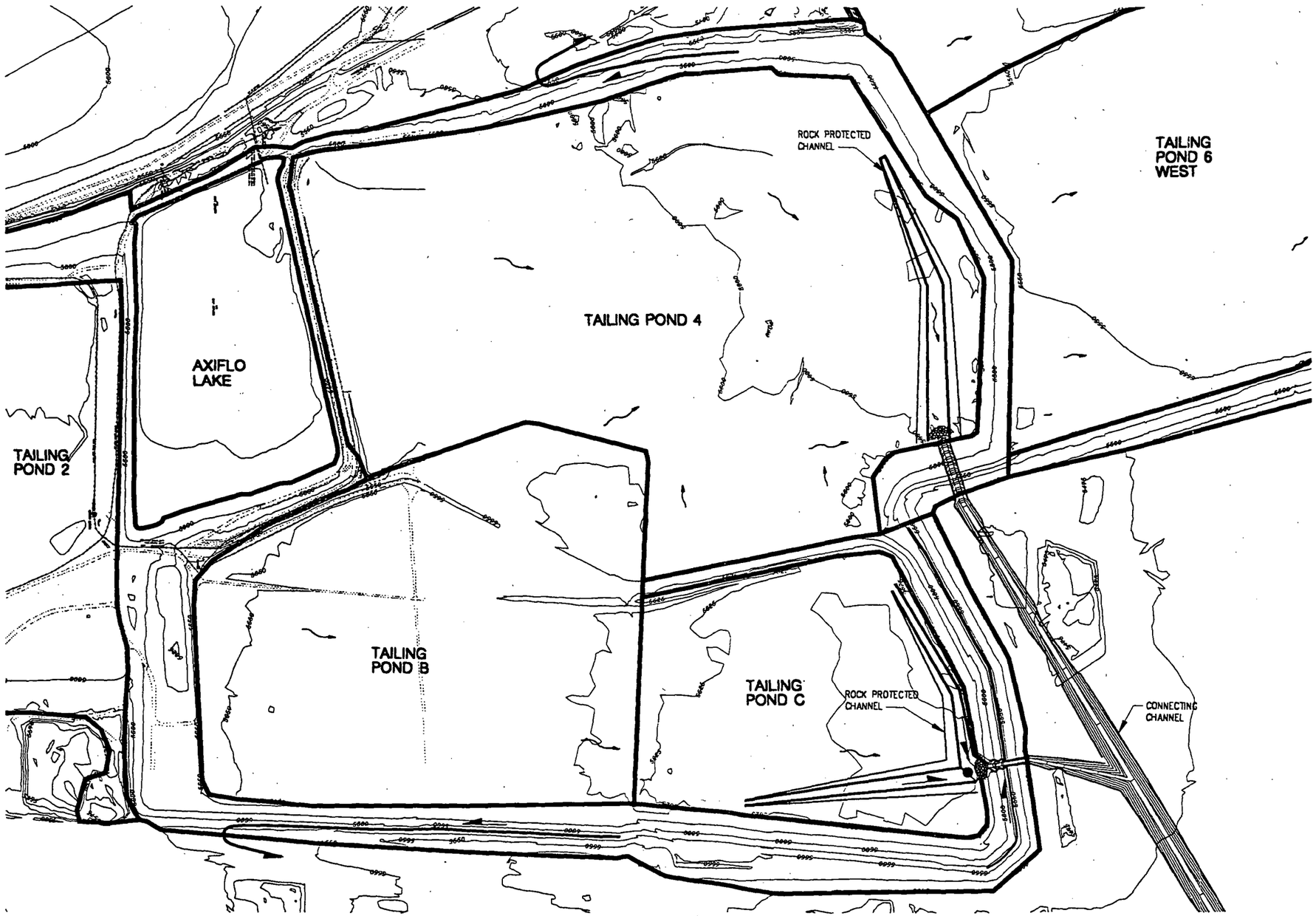
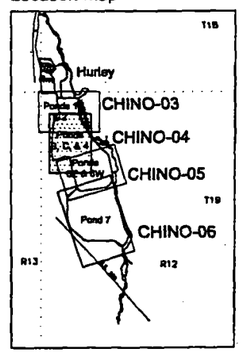
CHINO CLOSURE / CLOSEOUT PLAN
TAILING POND 1 & 2

CHINO-03



Location Map



0 800 Feet
Scale 1" = 800'

Note: Map coordinates are based on the New Mexico State Plane (NMSP) NAD 83, West Zone

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CHINO CLOSURE / CLOSEOUT
PLAN
TAILING POND B, C & 4

CHINO-04

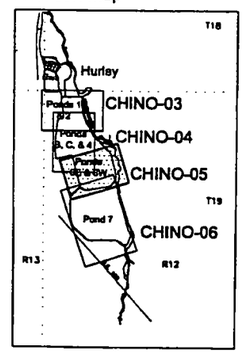
NAME: O:\2000\00315\Chino\Civil\CHINO-04.dwg LAST REV: LAST UPDATE: FEB 28, 2001 TIME: 2:05 PM BY: cr358 PLOT SCALE: 1:1

TAILING POND 6 EAST

TAILING POND 6 WEST

TAILING POND 4

Location Map



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Scale 1" = 800'

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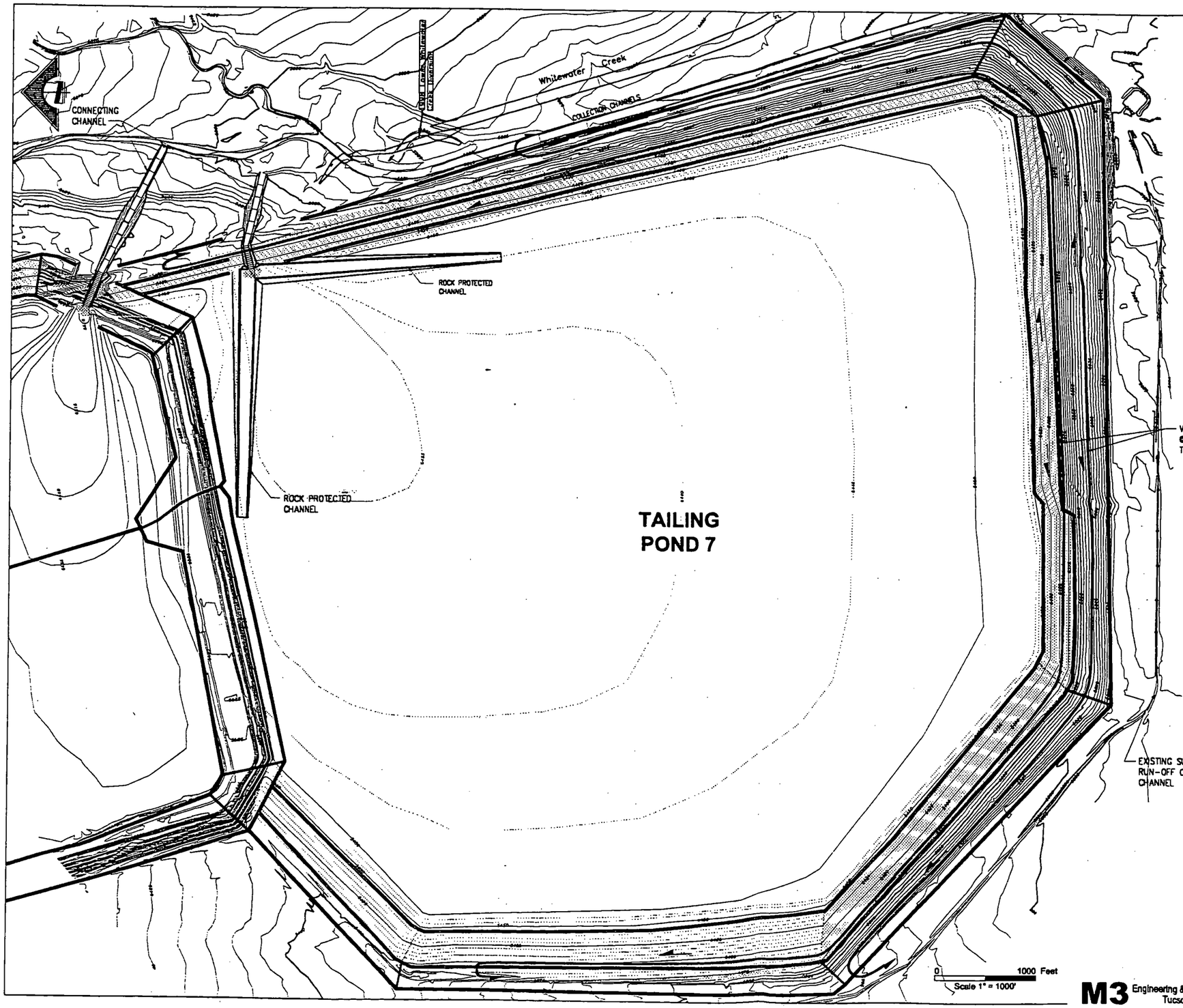
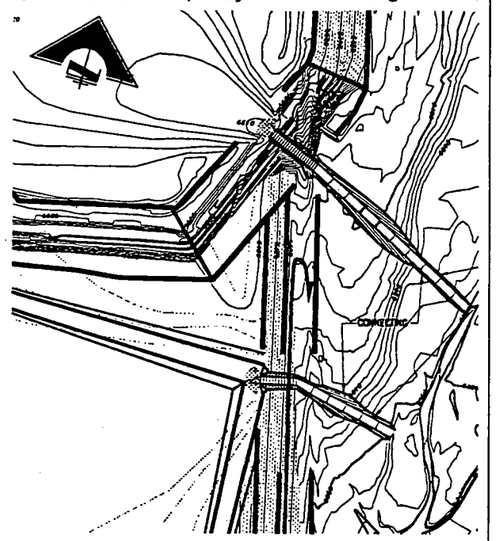
CHINO CLOSURE / CLOSEOUT PLAN
TAILING POND 6 EST & 6 WEST

CHINO-05

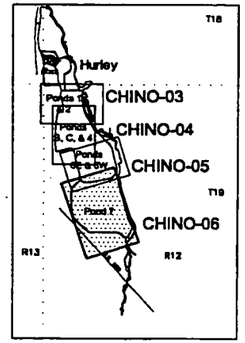


Ponds 7 & 6E/6W Spillways and Connecting Channels



0 1000 Feet
Scale 1" = 1000'

Location Map



Explanation

- 6100 — Land surface elevation contour (contour interval 5 ft and 25 ft)
- Facility outline
- Direction of slope
- Year 2004 projected contours
- Riprap at spillway entrance

Notes:

1. Topography is based on November 1998 data.

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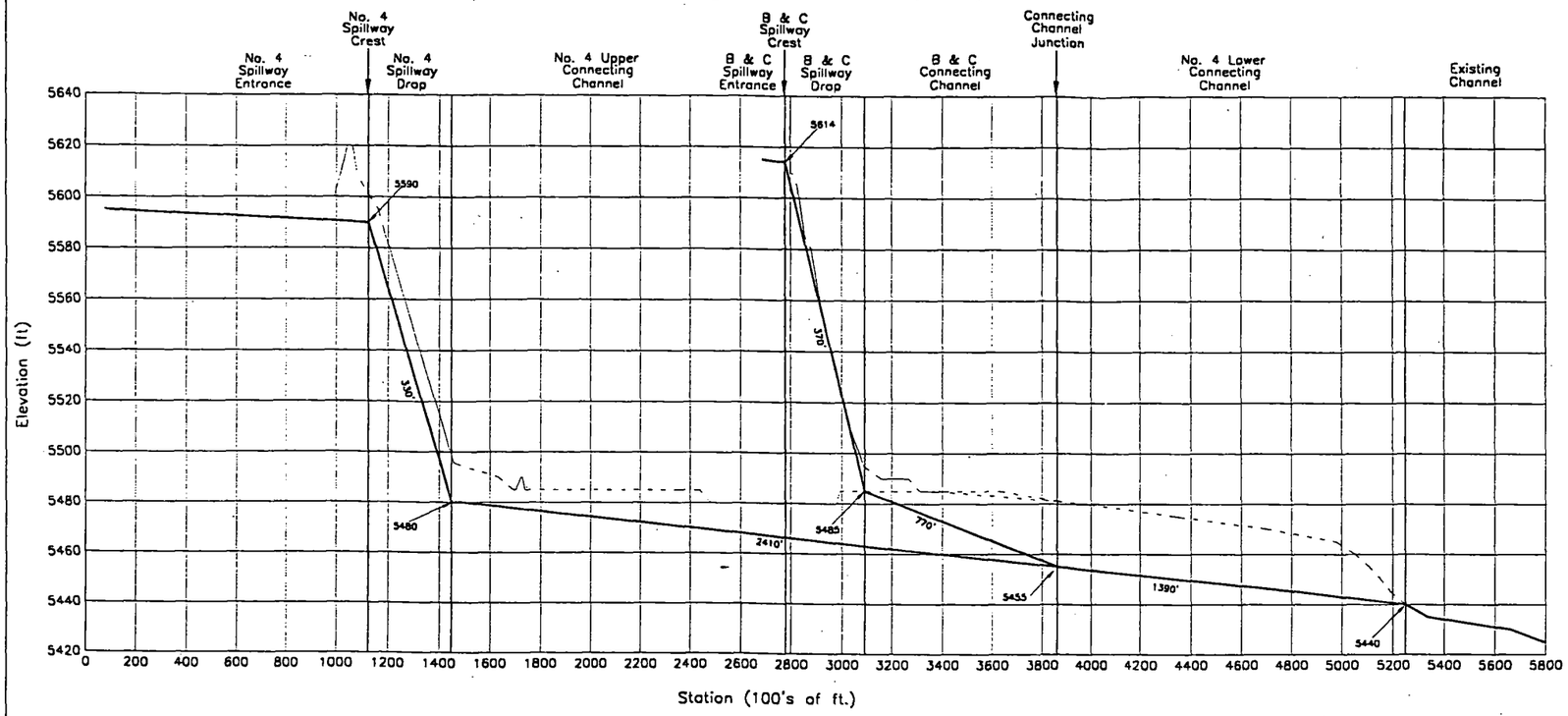
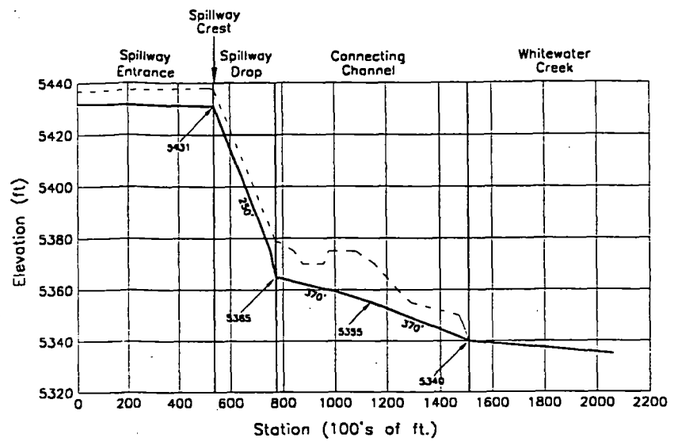
CHINO CLOSURE / CLOSEOUT
PLAN
TAILING POND 7

CHINO-06

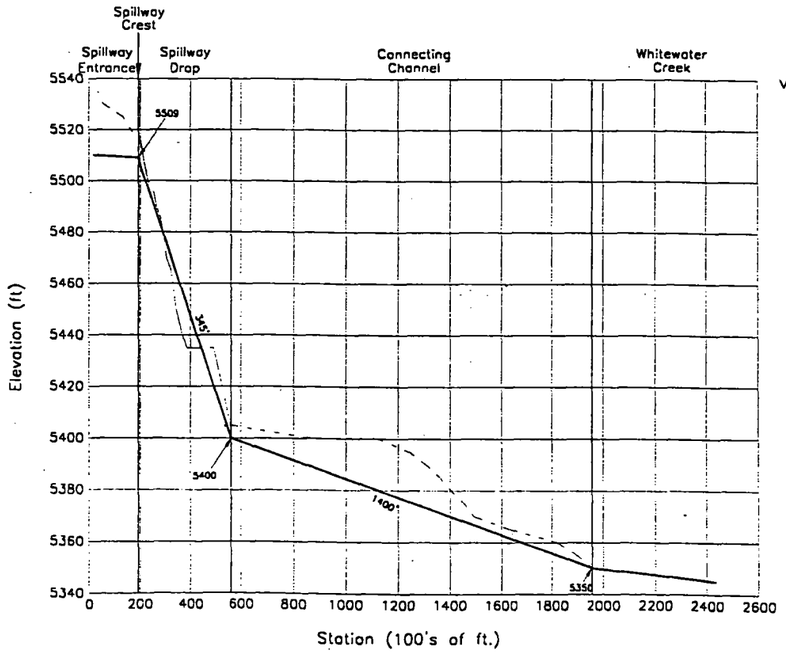
Profile of Tailing Ponds 4 & B/C Spillway

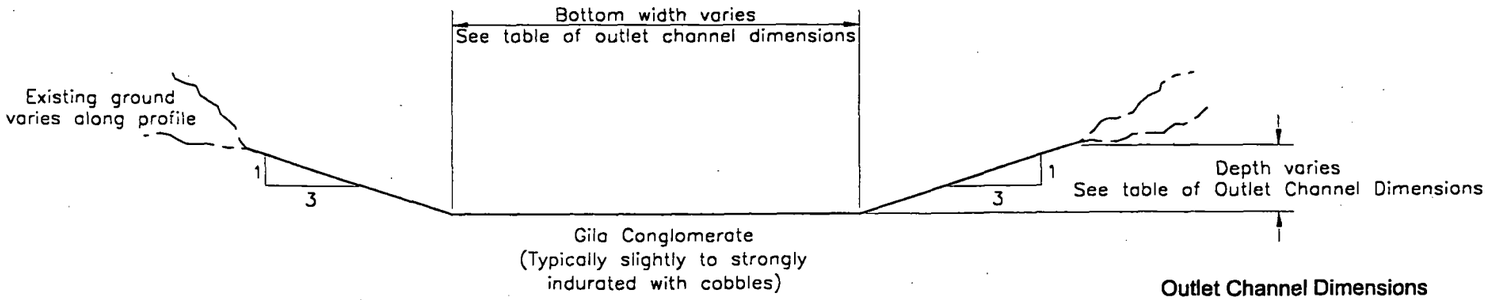


Profile of Tailing Pond 7 Spillway



Profile of Tailing Ponds 6E & 6W Spillway





Outlet Channel Cross Section (1)

0 600 Feet
Scale 1" = 600'

Explanation

- Approximate existing ground surface
- Spillway/connecting channel centerline invert

Notes:

1. All profiles are at a x10 vertical exaggeration

Outlet Channel Dimensions

Tailing Pond	Bottom Width (Feet)	Minimum Depth (Feet)	Slope (ft/ft)
B & C	55	4	0.039
4 Upper	36	6.5	0.01
4 Lower	36	25	0.01
6E & 6W	125	5	0.036
7	125	4	0.041*

* Steepest portion of channel bed slope

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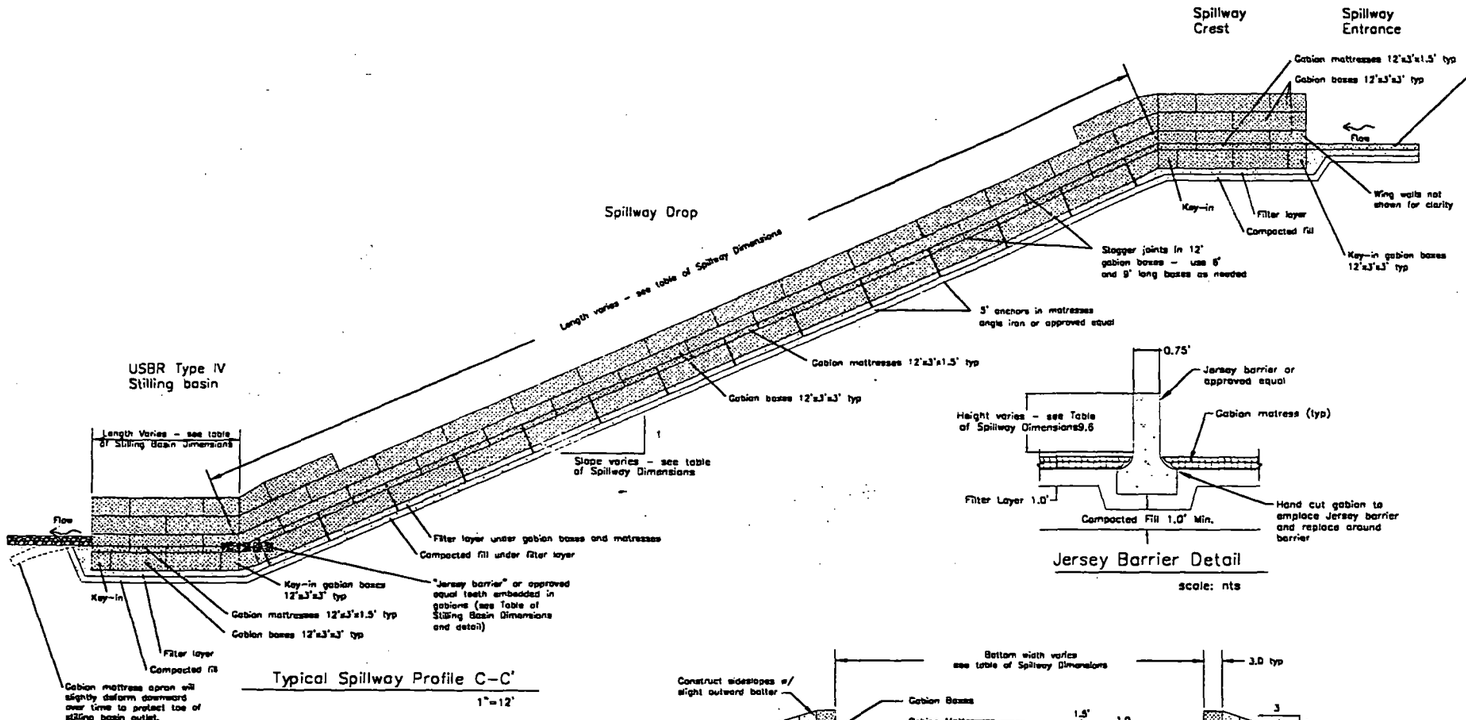
CHINO CLOSURE / CLOSEOUT
TAILING PONDS
SPILLWAY PROFILES

CHINO-07

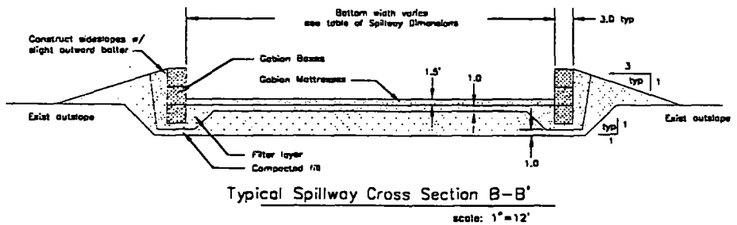


Typical Spillway Profile C–C'

1"=12'

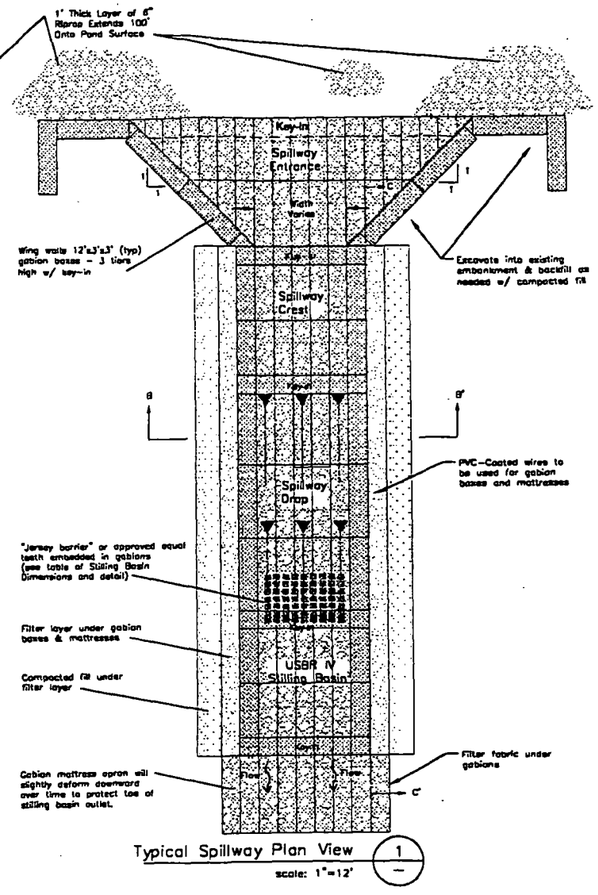
Jersey Barrier Detail

scale: nts



Typical Spillway Cross Section B–B'

scale: 1"=12'



Typical Spillway Plan View (1)

scale: 1"=12'

Spillway Dimensions

Tailing Pond	Bottom Width		Length		Slope
	Feet	No. of Gabion Matresses Wide	Feet	No. of Gabion Matresses Long	(H:1)
B & C	24	8	336	28–12'	2.9
4	36	12	343	28–12', 1–6'	3.0
6E & 6W	60	20	385	32–12'	3.2
7	60	20	243	20–12', 1–6'	3.8

Stilling Basin Dimensions

Tailing Pond	Bottom Width		Length		Approximate Tooth Design				No. of Teeth
	Feet	No. of Gabion Matresses Wide	Feet	No. of Gabion Matresses Long	Height (ft)	Width (ft)	Length (ft)	Spacing (ft)	
B & C	24	8	30	2–12', 1–6'	1.50	0.75	1.50	2.00	~10
4	36	12	30	2–12', 1–6'	1.50	0.75	1.50	2.00	~15
6E & 6W	60	20	36	3–12'	1.75	0.75	1.75	2.00	~20
7	60	20	36	3–12'	1.75	0.75	1.75	2.00	~20

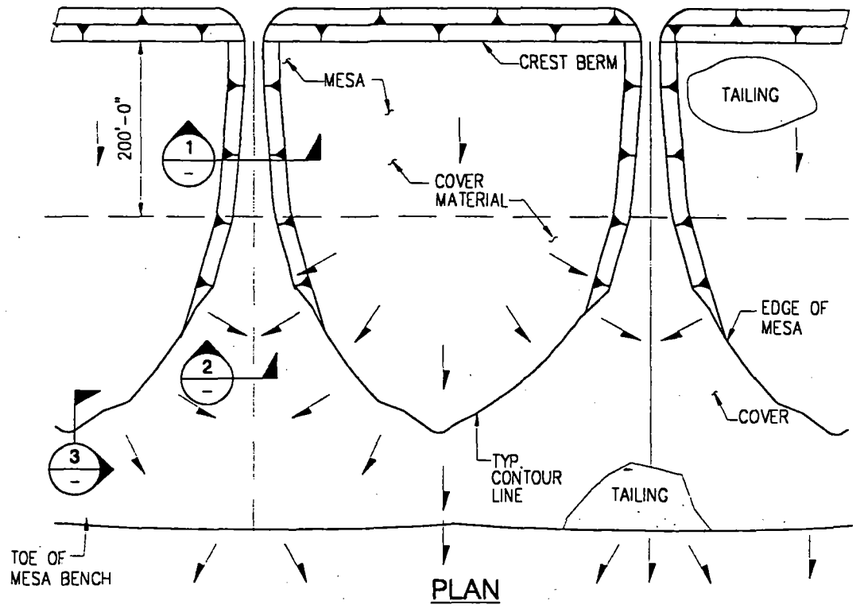
0 24 Feet

Scale 1" = 24'

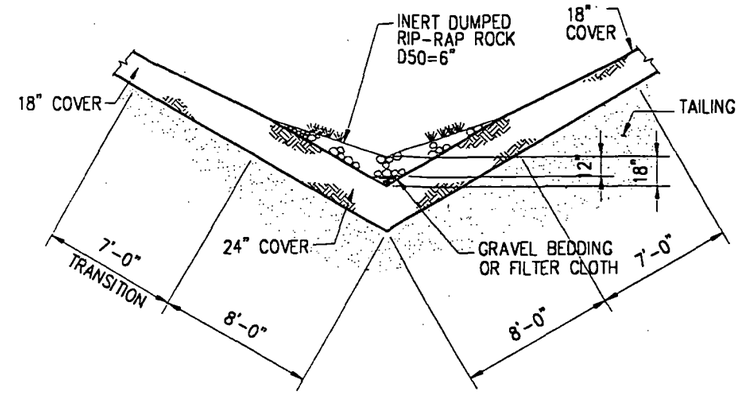
M3 Engineering & Technology Corp. Tucson, Arizona

CHINO CLOSURE / CLOSEOUT
TAILING PONDS
SPILLWAY CONSTRUCTION DETAILS

CHINO-08



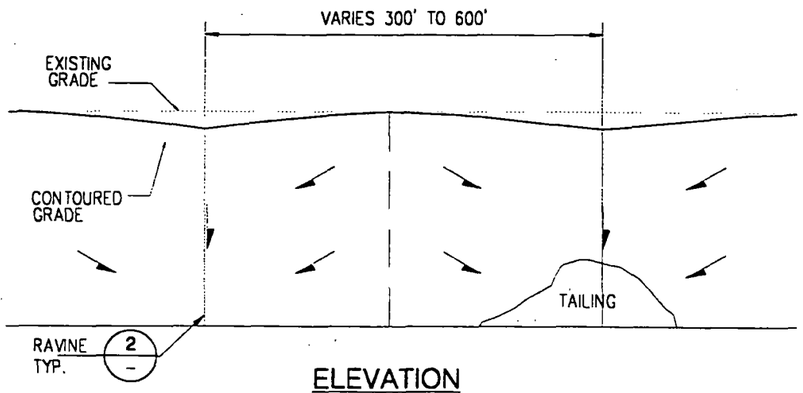
PLAN



SECTION

DETAIL

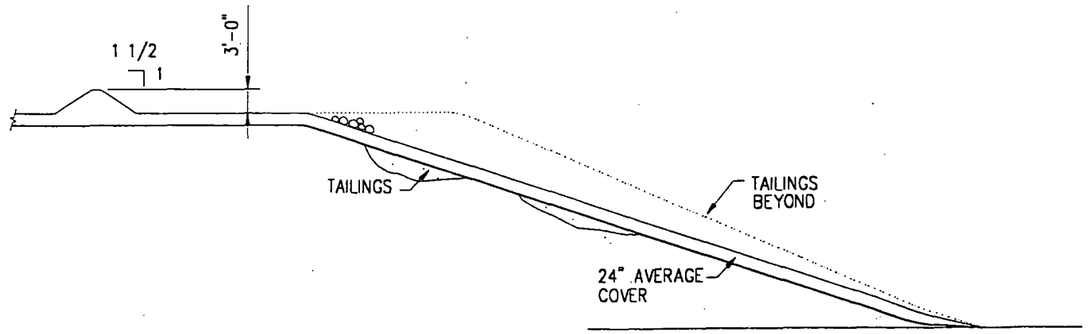
N.T.S. RAVINE WATERWAY WITH STONE CENTER (2/-)



ELEVATION

DETAIL

N.T.S. TAILING SLOPE (4/-)



SECTION

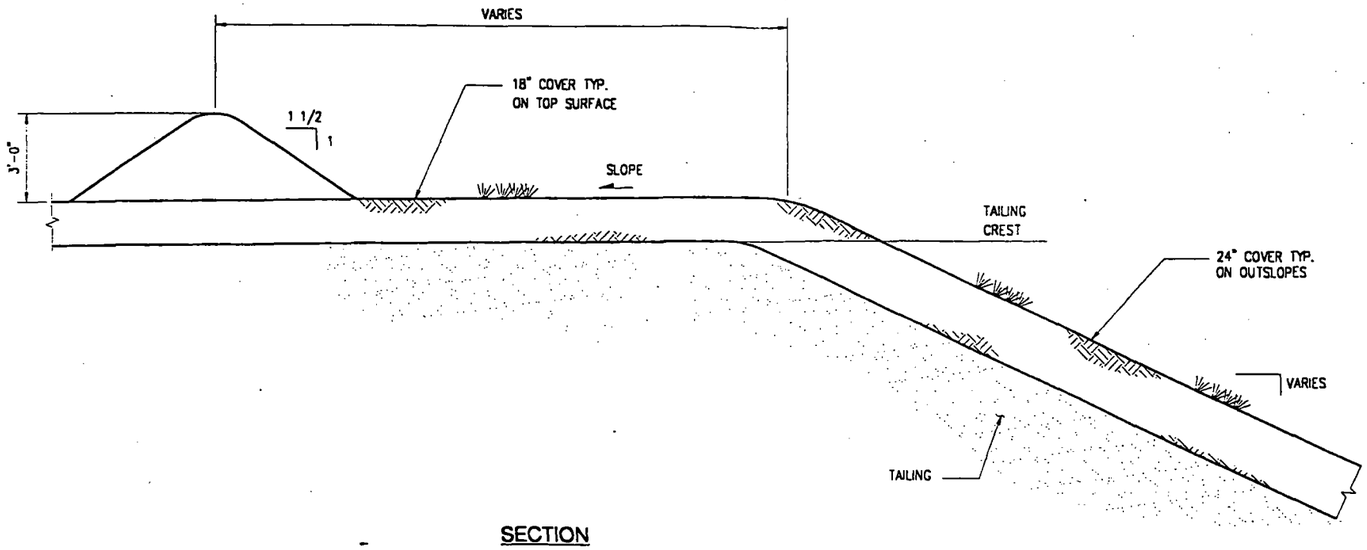
N.T.S. (3/-)

M3 Engineering & Technology Corp. Tucson, Arizona

CHINO CLOSURE / CLOSEOUT
TAILING PONDS
OUTSLOPE SURFACE RUNOFF DETAILS

CHINO-09

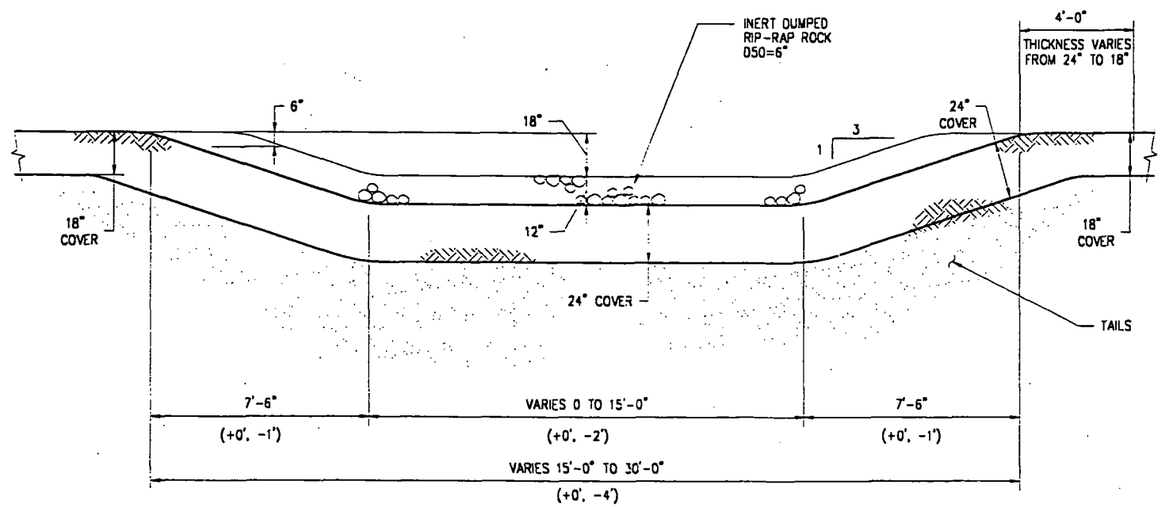
NAME: D:\2000\00315\Chino\Civil\CHINO-09.dwg LAST REV: LAST UPDATE: MAR 14, 2001 TIME: 4:48 PM BY: gr358 PLOT SCALE: 1:1



SECTION

DETAIL

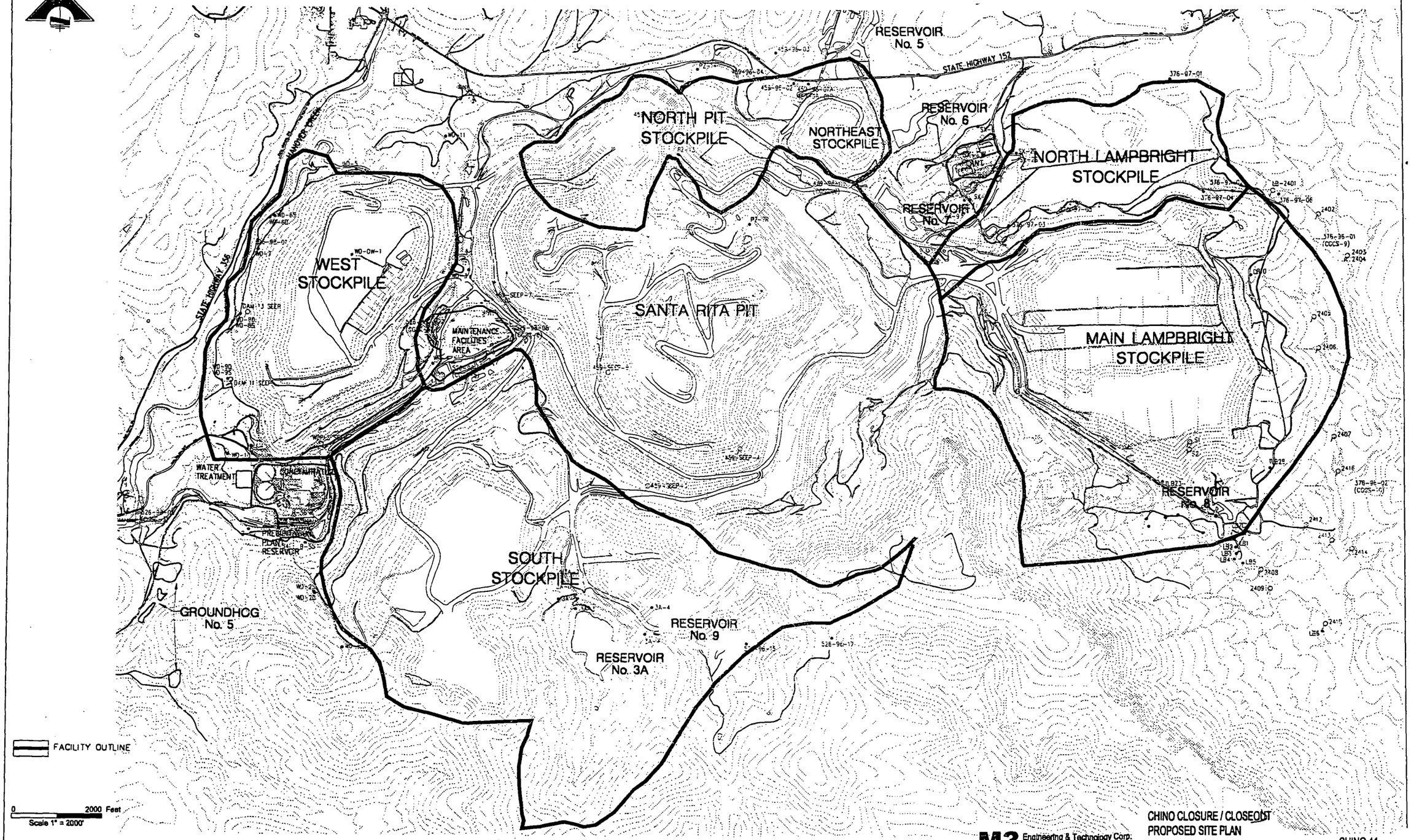
TAILING MESA BERM (3/-)



SECTION

DETAIL - ROCK PROTECTED CHANNEL

RIVER BED WATERWAY WITH STONE CENTER (1/-)



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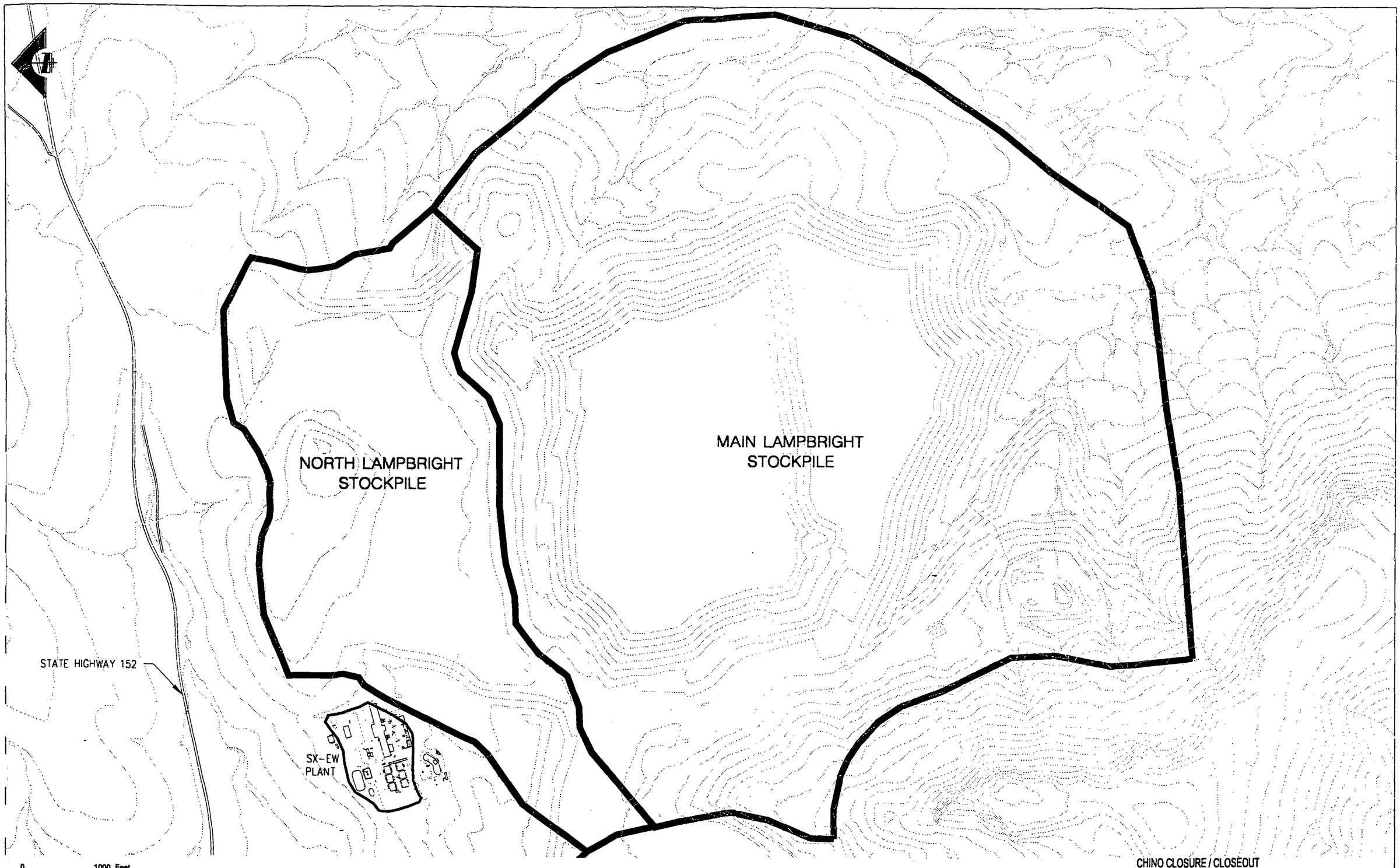
Tucson, Arizona

CHINO CLOSURE / CLOSEOUT
PROPOSED SITE PLAN
STOCKPILE AREA

CHINO-11

NAME: C:\2000\00315\Chino\Civil\CHINO-11.dwg LAST REV: LAST UPDATE: MAR 13, 2001 TIME: 4:37 PM BY: cr358 PLOT SCALE: 1:1



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Tucson, Arizona

CHINO CLOSURE / CLOSEOUT
PROPOSED PLAN
LAMPBRIGHT STOCKPILES

CHINO-12

NAME: O:\2000\00315\Chino\Civil\CHINO-12.dwg LAST REV: LAST UPDATE: MAR 01, 2001 TIME: 10:42 AM BY: PR504 PLOT SCALE: 1:1

SEEPAGE COLLECTION

MAINTENANCE FACILITIES AREA

WATER TREATMENT

CONCENTRATOR

RAILROAD

RESERVOIR No. 17

PRECIPITATION PLANT RESERVOIR No. 4

SOUTH STOCKPILE

GROUNDHOG No. 5

RESERVOIR No. 3A

RESERVOIR No. 9

0 1200 Feet

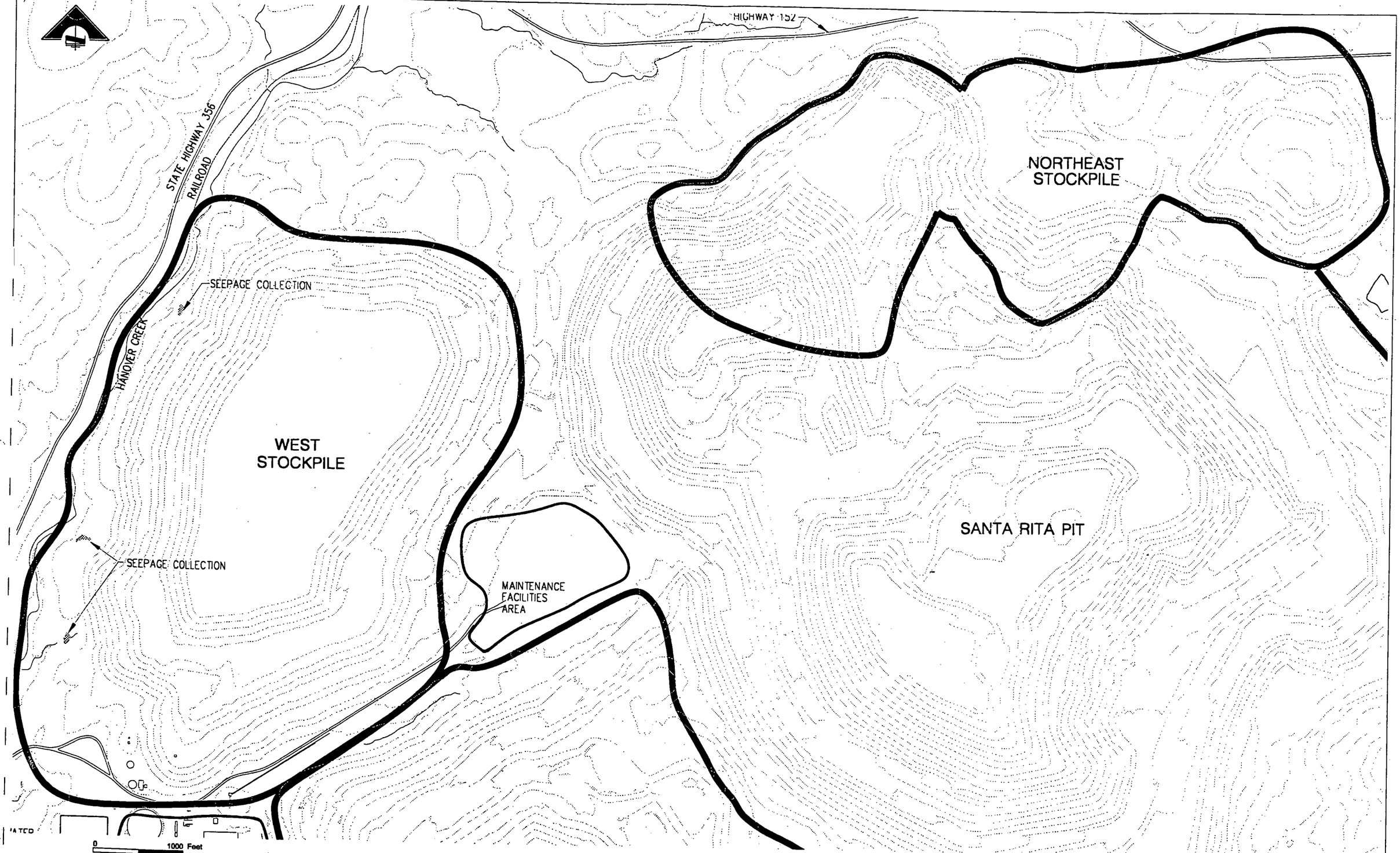
Scale 1" = 1200'

M3 Engineering & Technology Corp. Tucson, Arizona

CHINO CLOSURE / CLOSEOUT
PROPOSED PLAN
SOUTH STOCKPILE

CHINO-13

NAME: O:\2000\00315\Chino\Civil\CHINO-13.dwg LAST REV: LAST UPDATE: MAR 12, 2001 TIME: 4:49 PM BY: cr358 PLOT SCALE: 1:1

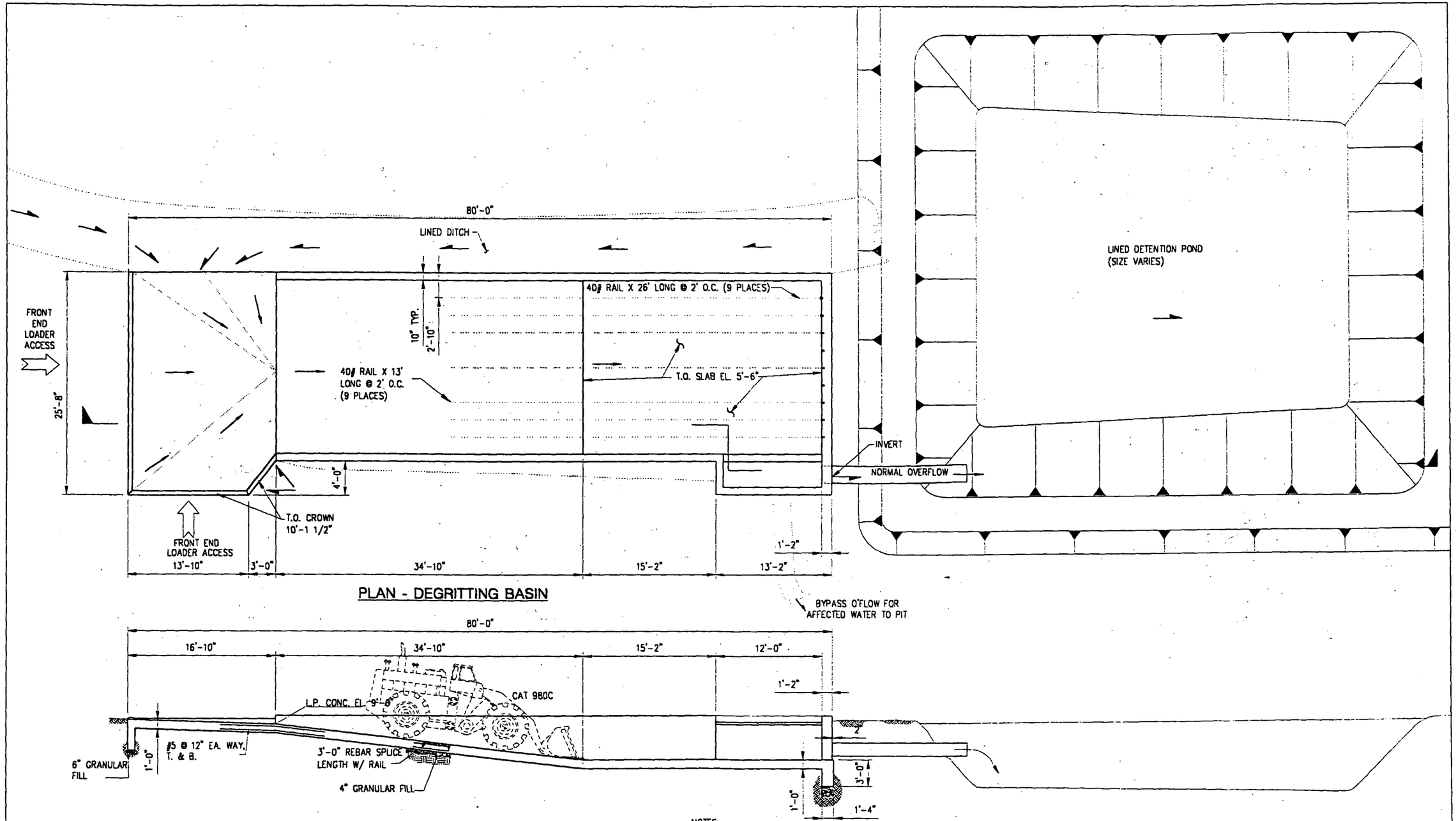


NAME: C:\2000\00315\Chinc\Civil\CHINO-14.dwg LAST REV: LAST UPDATE: MAR 01, 2001 TIME: 10:45 AM BY: PR504 PLOT SCALE: 1:1

M3 Engineering & Technology Corp. Tucson, Arizona

CHINO CLOSURE / CLOSEOUT
PROPOSED PLAN
WEST AND NORTHEAST STOCKPILE

CHINO-14



NOTES:

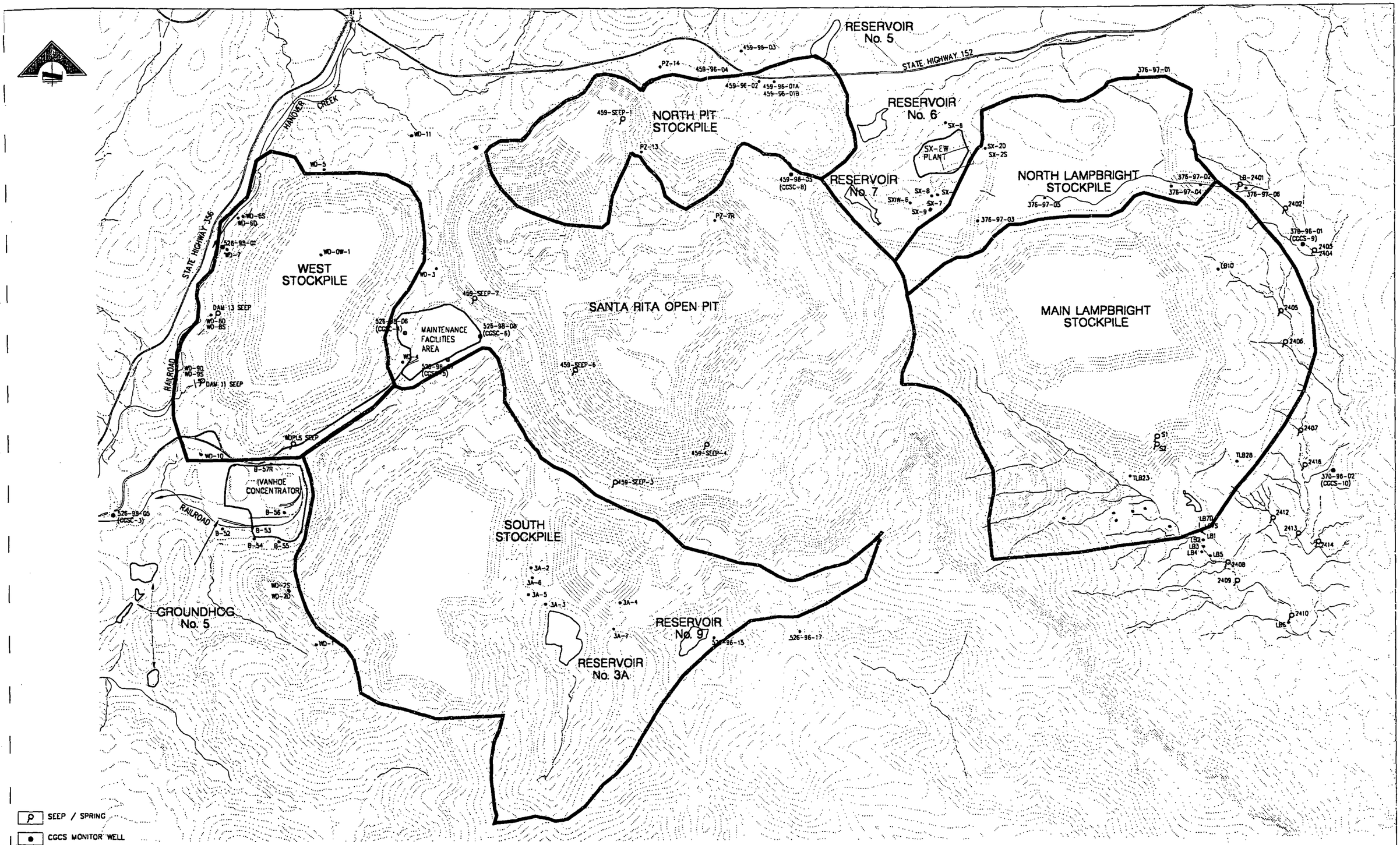
1. ALL PIPES FEEDING DEGRITTING BASIN ARE TO ENTER BASIN AT THE SHALLOW END.
2. BASIN DESIGNED FOR A CAT 980C FRONT END LOADER WITH A 5.5 CY STANDARD BUCKET.
3. ALL BACKFILL BENEATH SLAB WILL BE COMPACTED TO 99% MODIFIED PROCTOR DENSITY.

M3 Engineering & Technology Corp. Tucson, Arizona

CHINO CLOSURE / CLOSEOUT
STOCKPILES / TAILING
DETENTION PONDS

CHINO-15

NAME: O:\2000\00315\Chino\Civil\CHINO-15.dwg LAST REV: LAST UPDATE: FEB 21, 2001 TIME: 4:33 PM BY: cr356 PLOT SCALE: 1:1



SEEP / SPRING

CGCS MONITOR WELL

DP. SPECIFIC MONITOR WELL

0 2000 Feet

Scale 1" = 2000'

M3 Engineering & Technology Corp. Tucson, Arizona

CHINO CLOSURE / CLOSEOUT PLAN
WATER TREATMENT / HANDLING

CHINO-16

NAME: O:\2000\00315\Chino\Civil\CHINO-21.dwg LAST REV: LAST UPDATE: MAR 01, 2001 TIME: 10:28 AM BY: cr358 PLOT SCALE: 1:1

MAKE-UP WATER WELLS
5,500 gpm

TAILINGS INTERCEPTOR WELLS
2,820 gpm

WHITEWATER CREEK INTERCEPTOR WELLS
500 gpm

SULFURIC ACID PUMP

SULFURIC ACID TOTE

ACID NEUTRALIZATON FEED SYSTEM

TREATMENT PLANT EFFLUENT
1,000 gpm

CLEARWELL

MIX TANK

BENEFICIAL USE
9,620 gpm

LIQUID POLYMER TOTE

POLYMER PUMP

POLYMER FEED SYSTEM

LIME SILO

CLARIFIER

RAPID MIX TANK

LIME REACTOR TANK

LIME SLURRY RECIRCULATION

MAKE-UP WATER

LIME SLURRY

LIME FEED SYSTEM

SLUDGE TO MANAGEMENT

SLUDGE RECYCLE PUMP

OPERATING RATE	DESIGN RATE
800 gpm	1,500 gpm

PIT INFLOW
400 gpm

PIT STORMWATER
100 gpm

STOCKPILE RUNOFF
100 gpm

STOCKPILE DRAINAGE
200 gpm

Notes:

1). Water Treatment Operating Rate assumed as follows
- Year 0 thru 5 : 1,000 gpm (125% Flowsheet)
- Year 6 thru 20 : 800 gpm (Flowsheet)
- Year 21 thru 30: 600 gpm

2). Well Water Rate assumed as follows:
- Year 0 thru 5 : Flowsheet
- Year 6 thru 20 : 80% of Flowsheet
- Year 21 thru 30: 50% of Flowsheet

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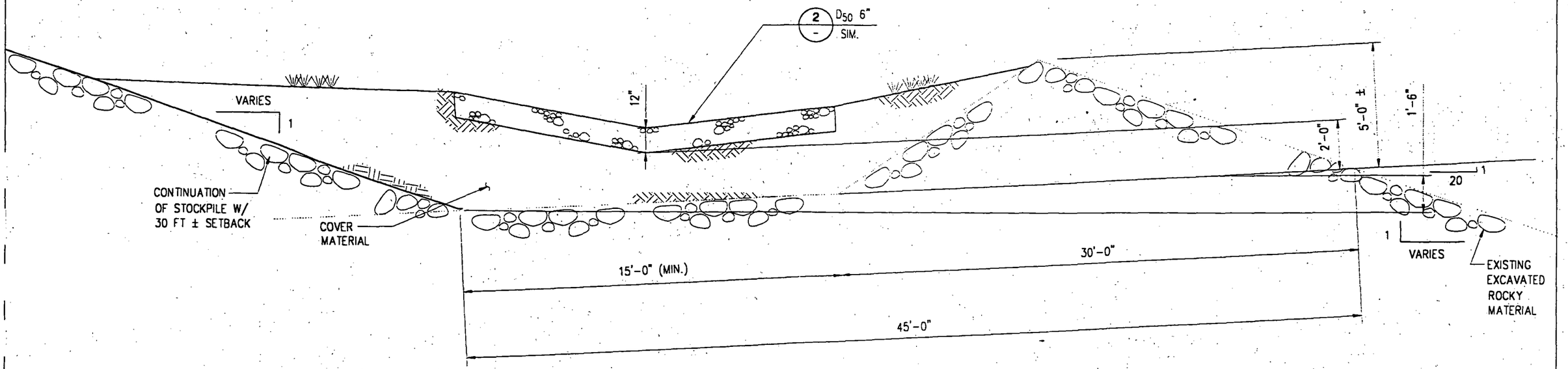
Tucson, Arizona

CHINO CLOSURE / CLOSEOUT
FLOWSHEET
WATER TREATMENT / HANDLING

CHINO-17



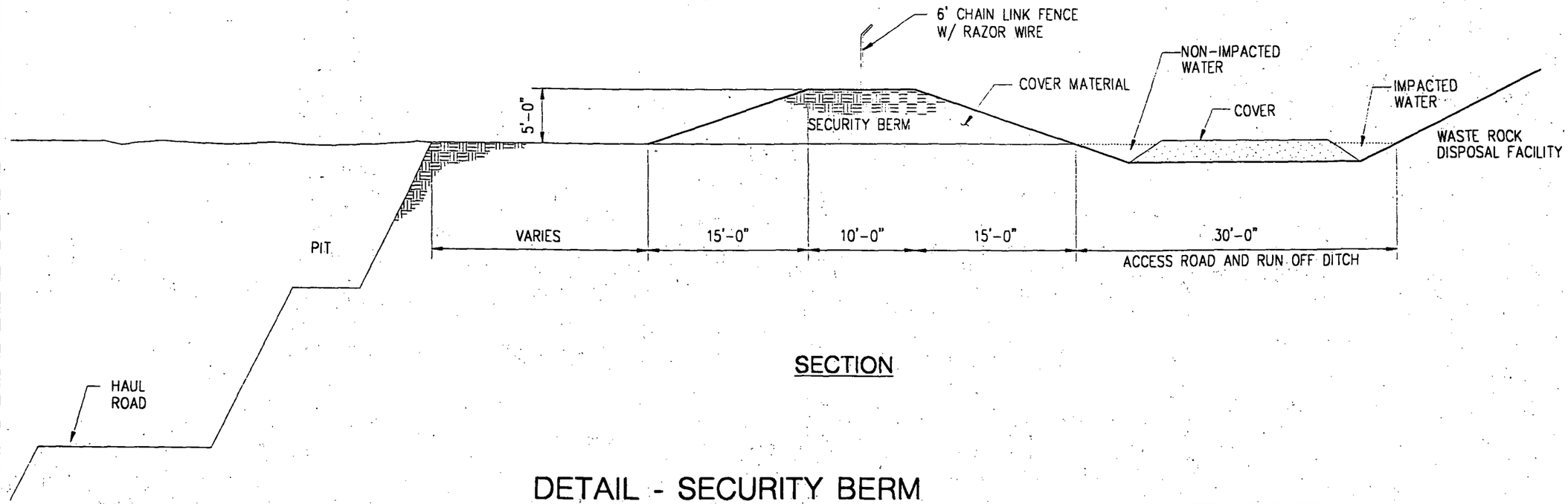
SECTION

DETAIL

N.T.S.

ON EXISTING BENCHES AND HAUL ROADS

BENCH SURFACE DITCH

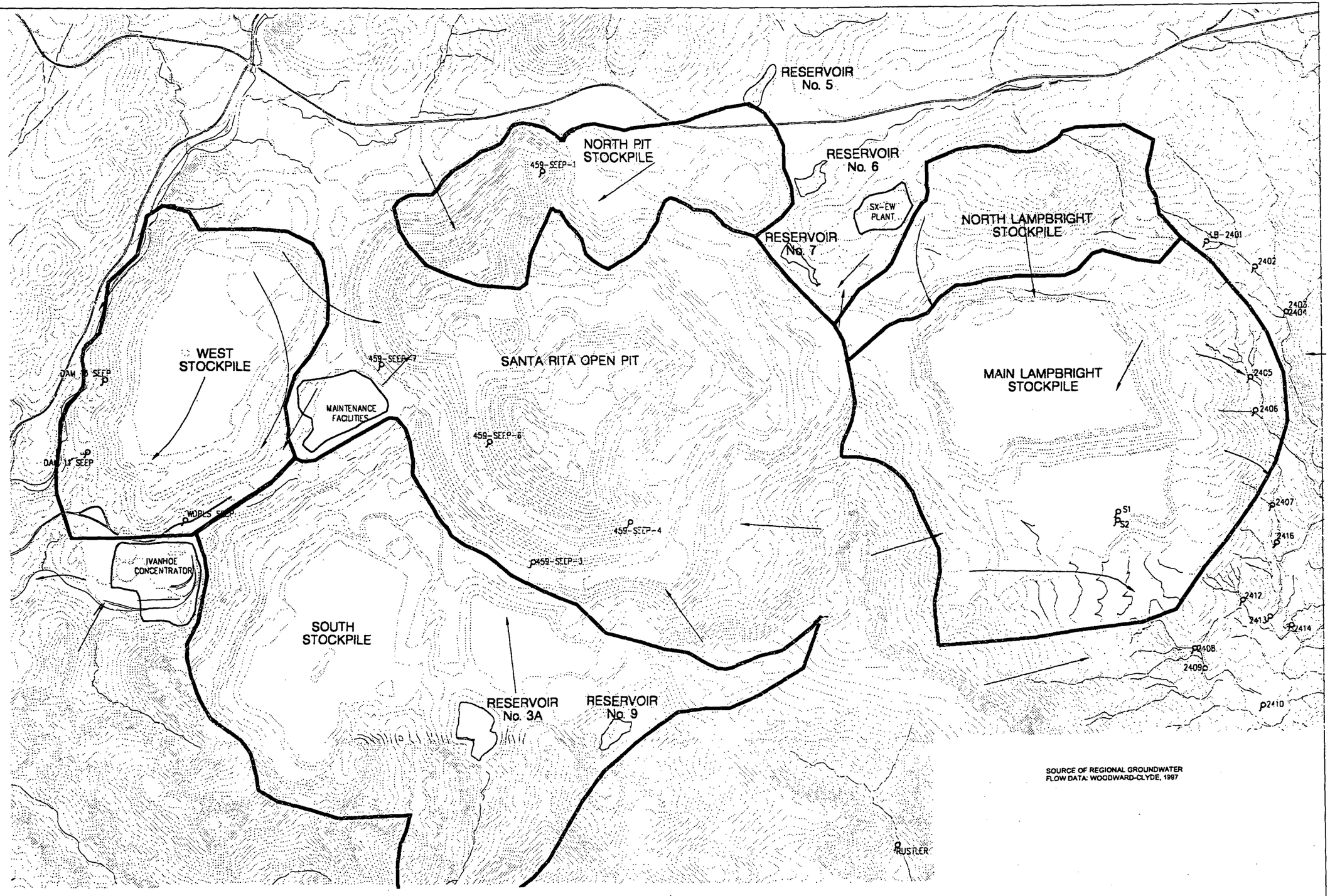


SECTION

DETAIL - SECURITY BERM

N.T.S.

PIT PERIMETER RUN-ON BERM



SOURCE OF REGIONAL GROUNDWATER FLOW DATA: WOODWARD-CLYDE, 1997

0 2000 Feet
Scale 1" = 2000'

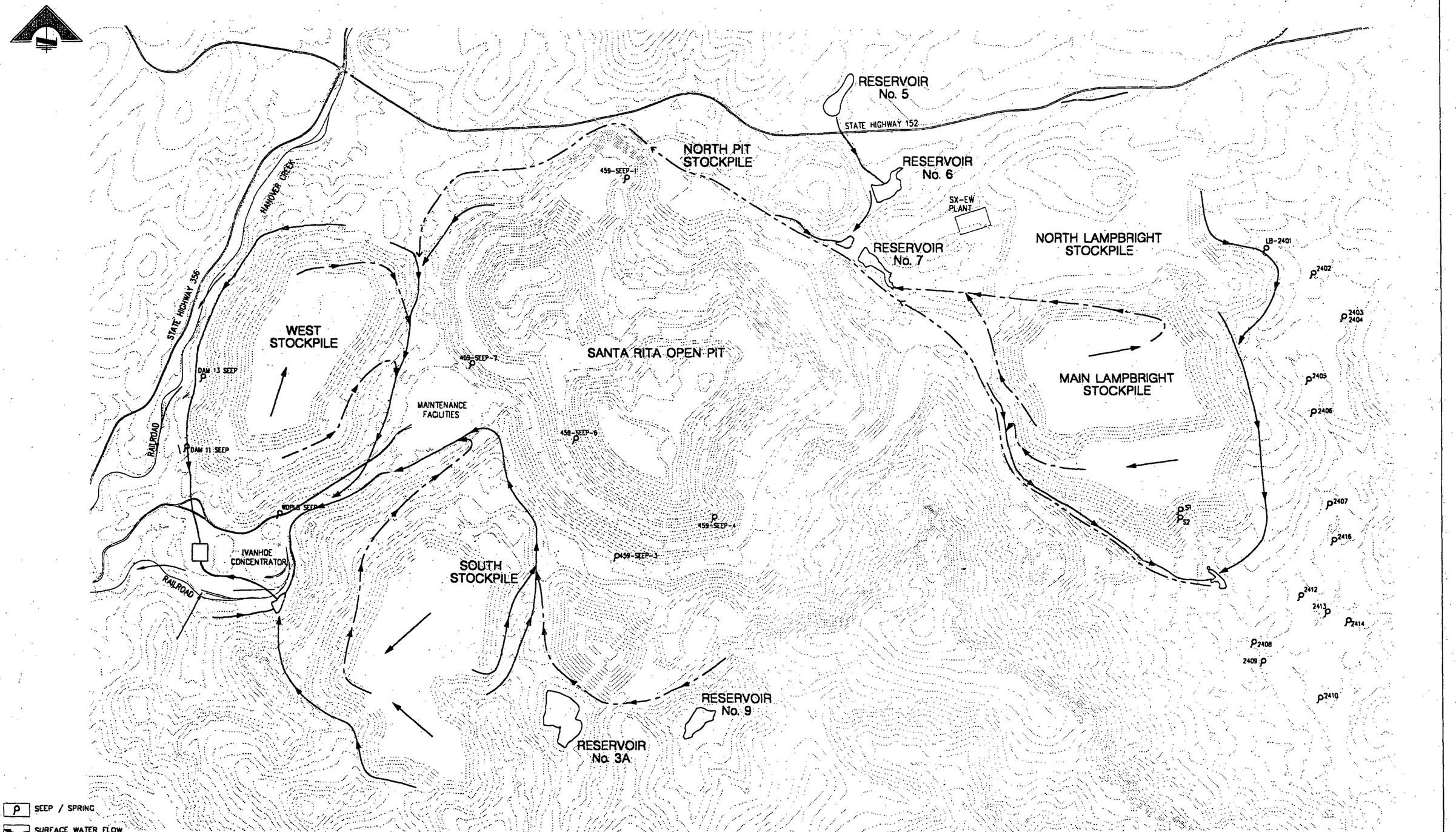
- SEEP / SPRING
- APPROXIMATE REGIONAL GROUNDWATER FLOW DIRECTION
- FACILITY OUTLINE

M3 Engineering & Technology Corp. Tucson, Arizona

CHINO CLOSURE / CLOSEOUT
SITE PLAN
GROUNDWATER FLOWS

CHINO-20

NAME: O:\2000\00315\Chinc\Civil\CHINO-20.dwg LAST REV: LAST UPDATE: FEB 24, 2001 TIME: 3:59 PM BY: cr358 PLOT SCALE: 1:1



NAME: C:\2000\00315\Chino\Civil\CHINO-21NEW.dwg LAST REV: LAST UPDATE: MAR 13, 2001 TIME: 10:26 AM BY: cr358 PLOT SCALE: 1:1

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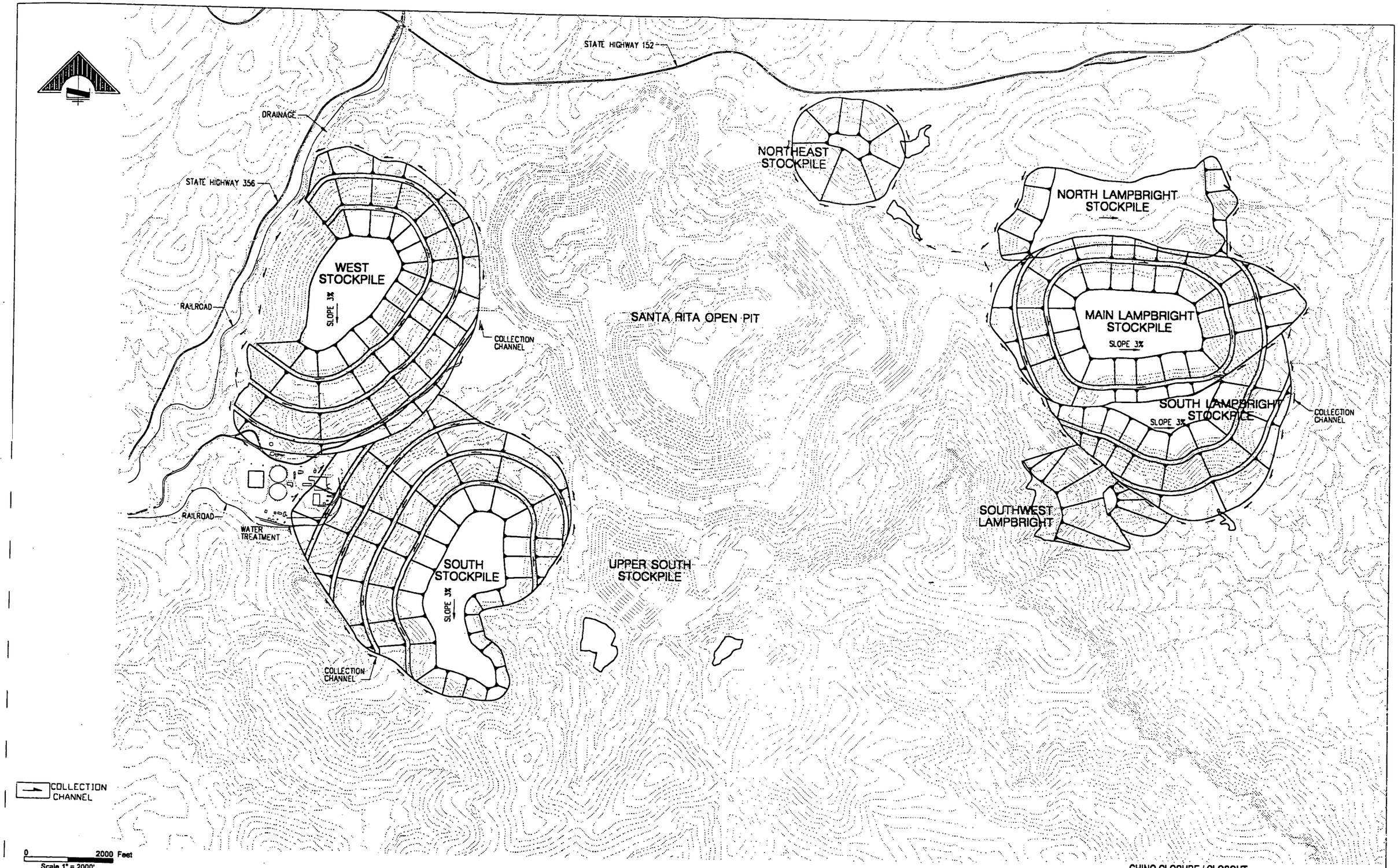
CHINO CLOSURE / CLOSEOUT
SITE PLAN
SURFACE WATER & STOCKPILE SEEPAGE FLOWS

CHINO-21



NAME: O:\2000\00315\Chino\Civil\CHINO-22.dwg LAST REV: LAST UPDATE: MAR 12, 2001 TIME: 5:00 PM BY: cr358 PLOT SCALE: 1:1

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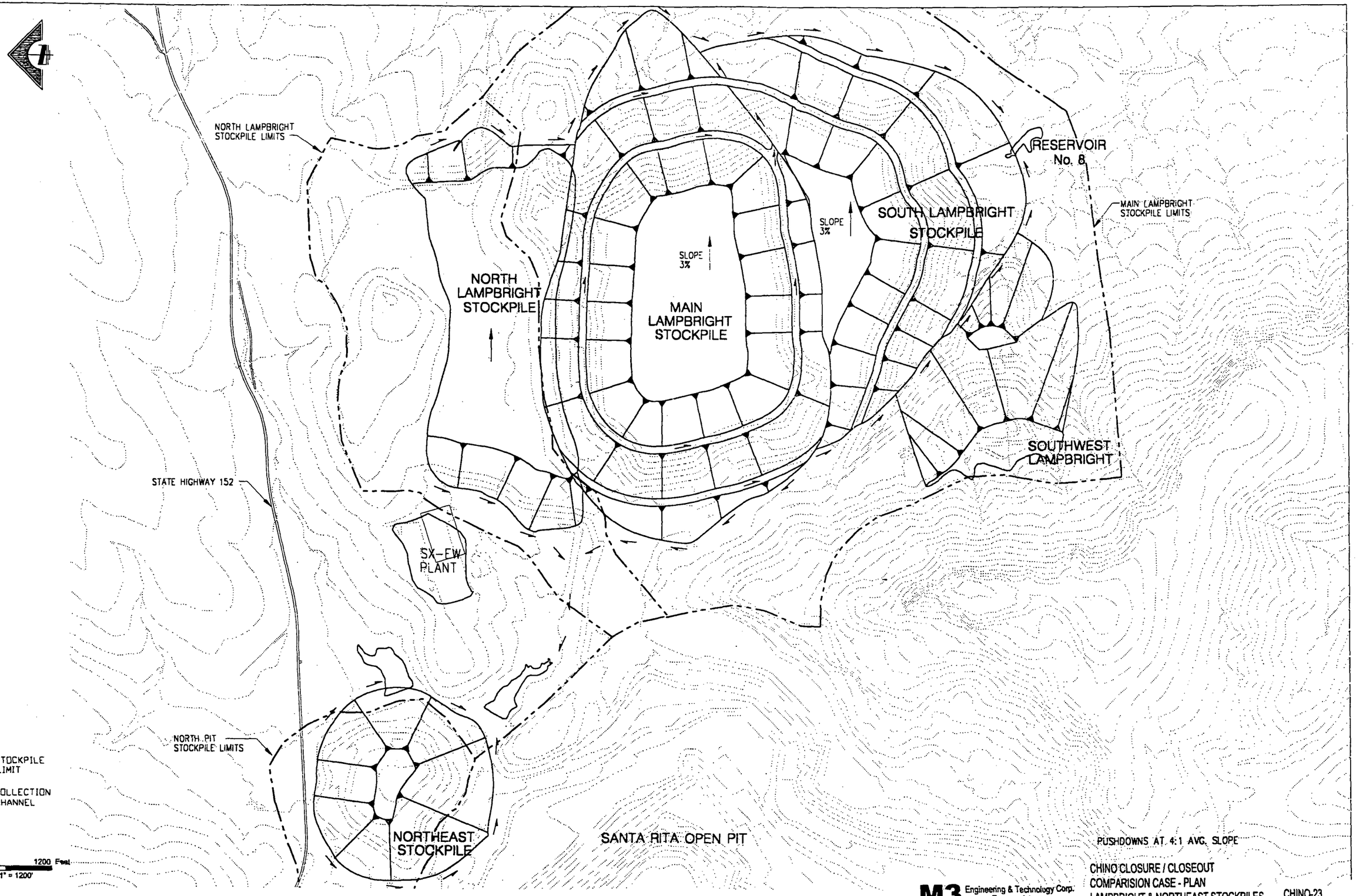
Tucson, Arizona

CHINO CLOSURE / CLOSOUT
COMPARISON CASE - SITE PLAN
STOCKPILE AREA

CHINO-22



PUSHDOWNS AT 4:1 AVG. SLOPE

CHINO CLOSURE / CLOSEOUT
COMPARISION CASE - PLAN
LAMPBRIGHT & NORTHEAST STOCKPILES

M3 Engineering & Technology Corp.
Tucson, Arizona

CHINO-23

NAME: Q:\2000\G0315\Chinc\Civil\CHINO-23.dwg LAST REV: LAST UPDATE: MAR 12, 2001 TIME: 5:01 PM BY: cr358 PLOT SCALE: 1:1

STATE HIGHWAY 152

SANTA RITA OPEN PIT

UPPER SOUTH STOCKPILE

COLLECTION CHANNEL

MAINTENANCE FACILITIES AREA

SOUTH STOCKPILE

SLOPE 3%

SOUTH STOCKPILE LIMIT

WEST STOCKPILE

SLOPE 3%

COLLECTION CHANNEL

DRAINAGE

STATE HIGHWAY 356

COLLECTION CHANNEL

WATER TREATMENT

RAILROAD

WEST STOCKPILE LIMIT

STOCKPILE LIMIT

COLLECTION CHANNEL

PUSHDOWNS AT 4:1 AVG. SLOPE

1200 Feet

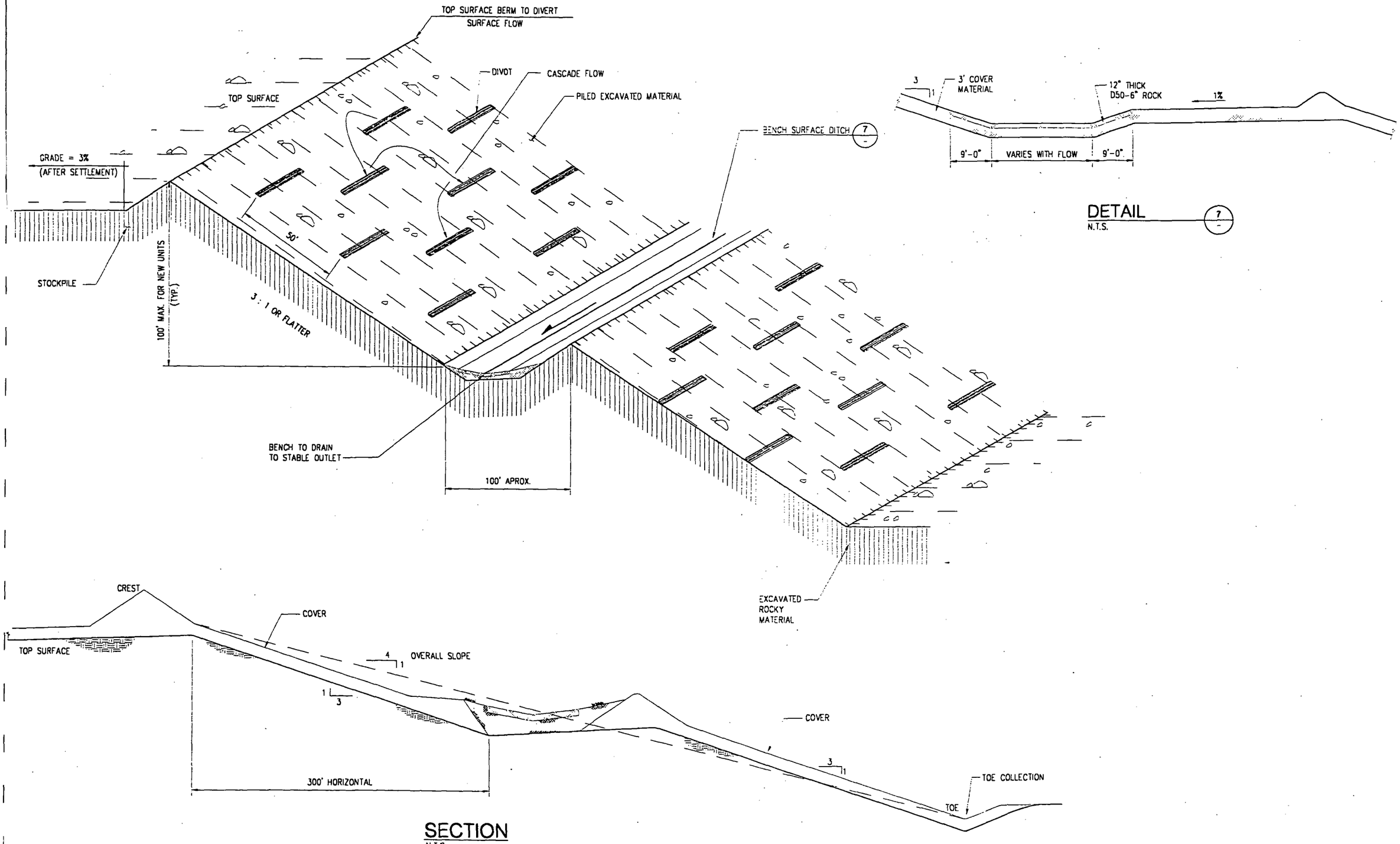
Scale 1" = 1200'

NAME: O:\2000\00315\Chino\Civil\CHINO-24.dwg LAST REV: LAST UPDATE: MAR 12, 2001 TIME: 5:04 PM BY: cr358 PLOT SCALE: 1:1

M3 Engineering & Technology Corp. Tucson, Arizona

CHINO CLOSURE / CLOSEOUT COMPARISON CASE - PLAN SOUTH AND WEST STOCKPILE

CHINO-24



NAME: O:\2000\00315\Chino\Civil\CHINO-25.dwg LAST REV: LAST UPDATE: FEB 26, 2001 TIME: 4:30 PM BY: cr355 PLOT SCALE: 1:1

M3 Engineering & Technology Corp. Tucson, Arizona

CHINO CLOSURE / CLOSOUT
STOCKPILES-COMPARISON CASE
OUTSLOPE DETAILS

CHINO-25

DP-591
SX/EW PLANT

DP-376
LAMPBRIGHT
LEACH
STOCKPILES

DP-459
MAIN PIT, NORTH PIT
LEACH STOCKPILE,
& RESERVOIR 5

DP-493
RESERVOIR 3A

DP-484
TAILING
POND 7

DP-214
LOWER
WHITEWATER CREEK
OLD TAILINGS,
& SMELTER

DP-526
WHITE WATER
LEACH STOCKPILES &
UPPER WHITE WATER
CREEK

DP-213
IVANHOE
CONCENTRATOR
& PIPELINES

DP-213
IVANHOE
CONCENTRATOR
& PIPELINES

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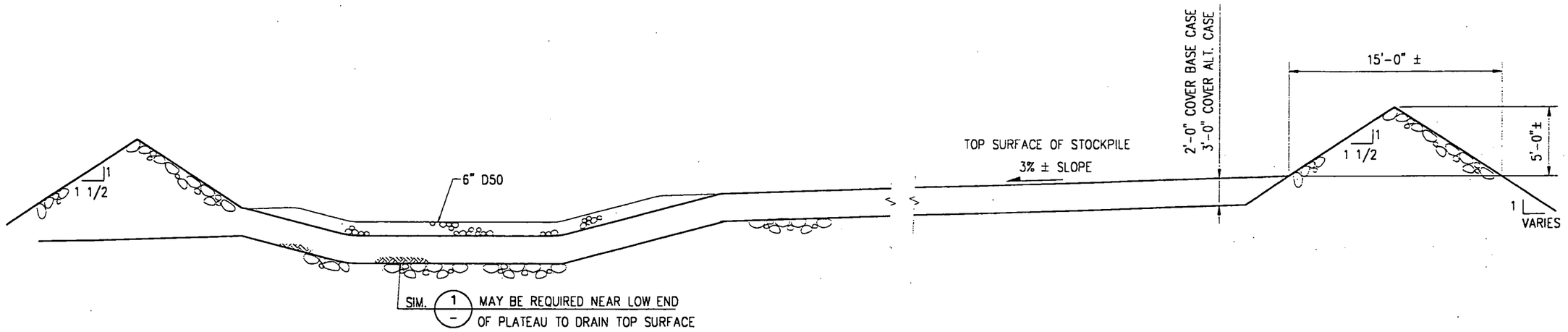
Tucson, Arizona

CHINO CLOSURE / CLOSEOUT
SITE PLAN
DISCHARGE PERMIT BOUNDARIES

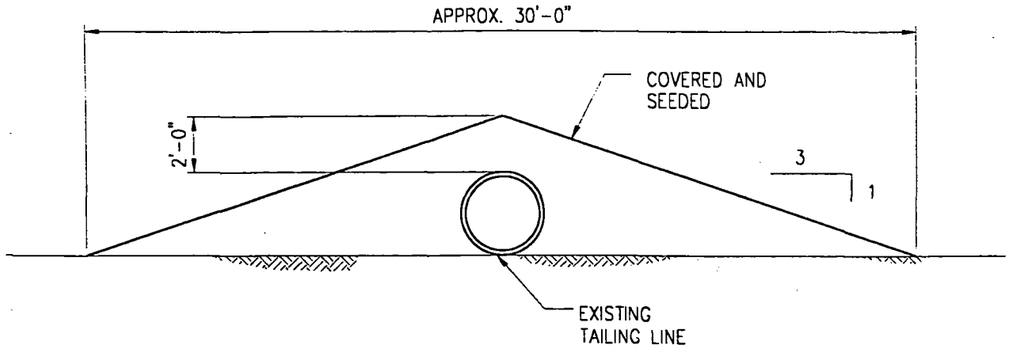
CHINO-26

NAME: O:\2000\00315\Chino\Civil\CHINO-26.dwg LAST REV: LAST UPDATE: FEB 28, 2001 TIME: 9:55 AM BY: cr358 PLOT SCALE: 1:1



DETAIL FOR STOCKPILES, HAUL ROADS, BENCHES OR TOP SURFACES

N.T.S.



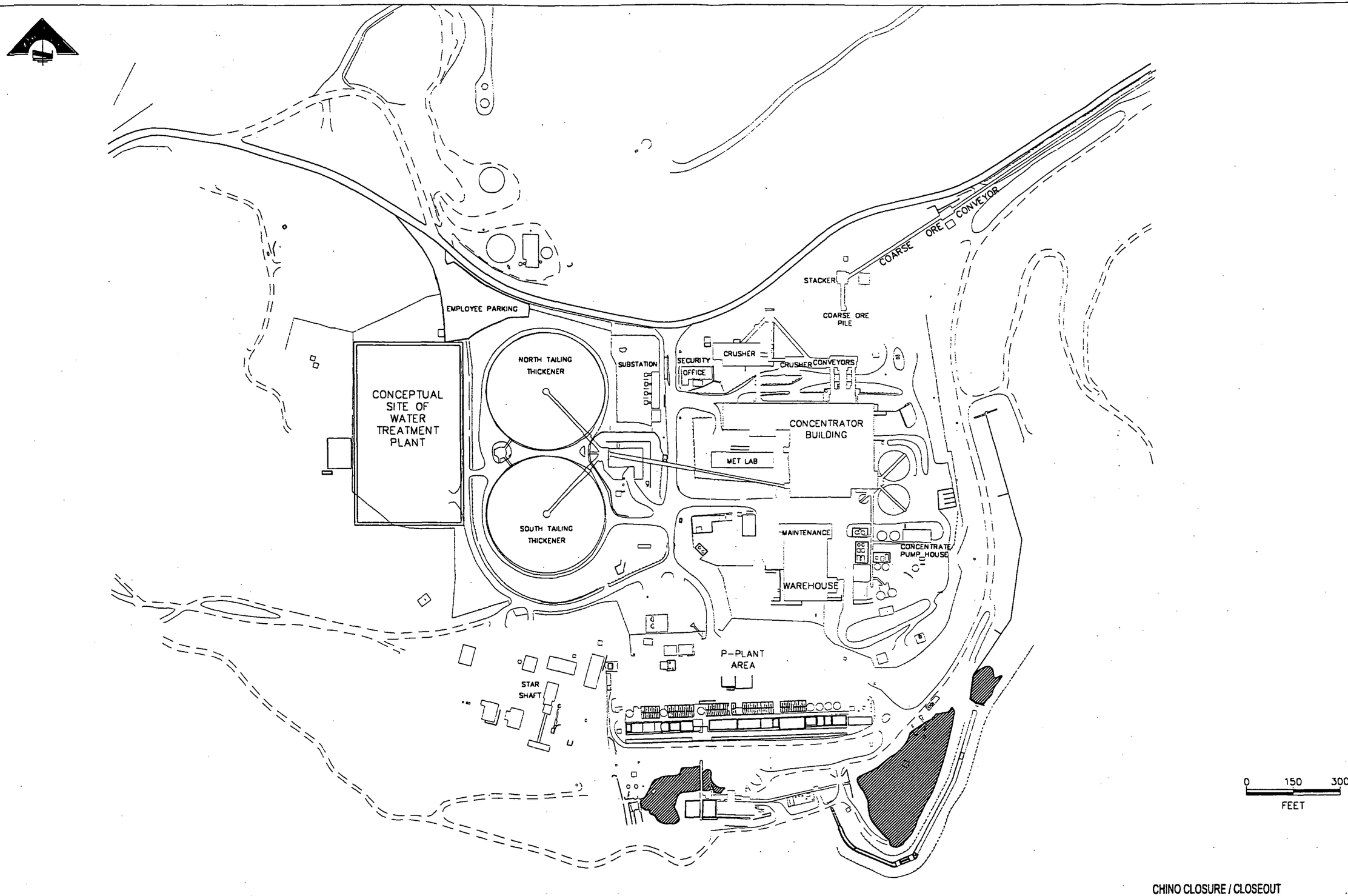
DETAIL - TAILINGS LAUNDER COVER (10)

NAME: O:\2000\00315\Chino\Civil\CHINO-28.dwg LAST REV: LAST UPDATE: MAR 08, 2001 TIME: 1:23 PM BY: cr358 PLOT SCALE: 1:1

M3 Engineering & Technology Corp. Tucson, Arizona

CHINO CLOSURE / CLOSEOUT
MISCELLANEOUS COVER DETAILS

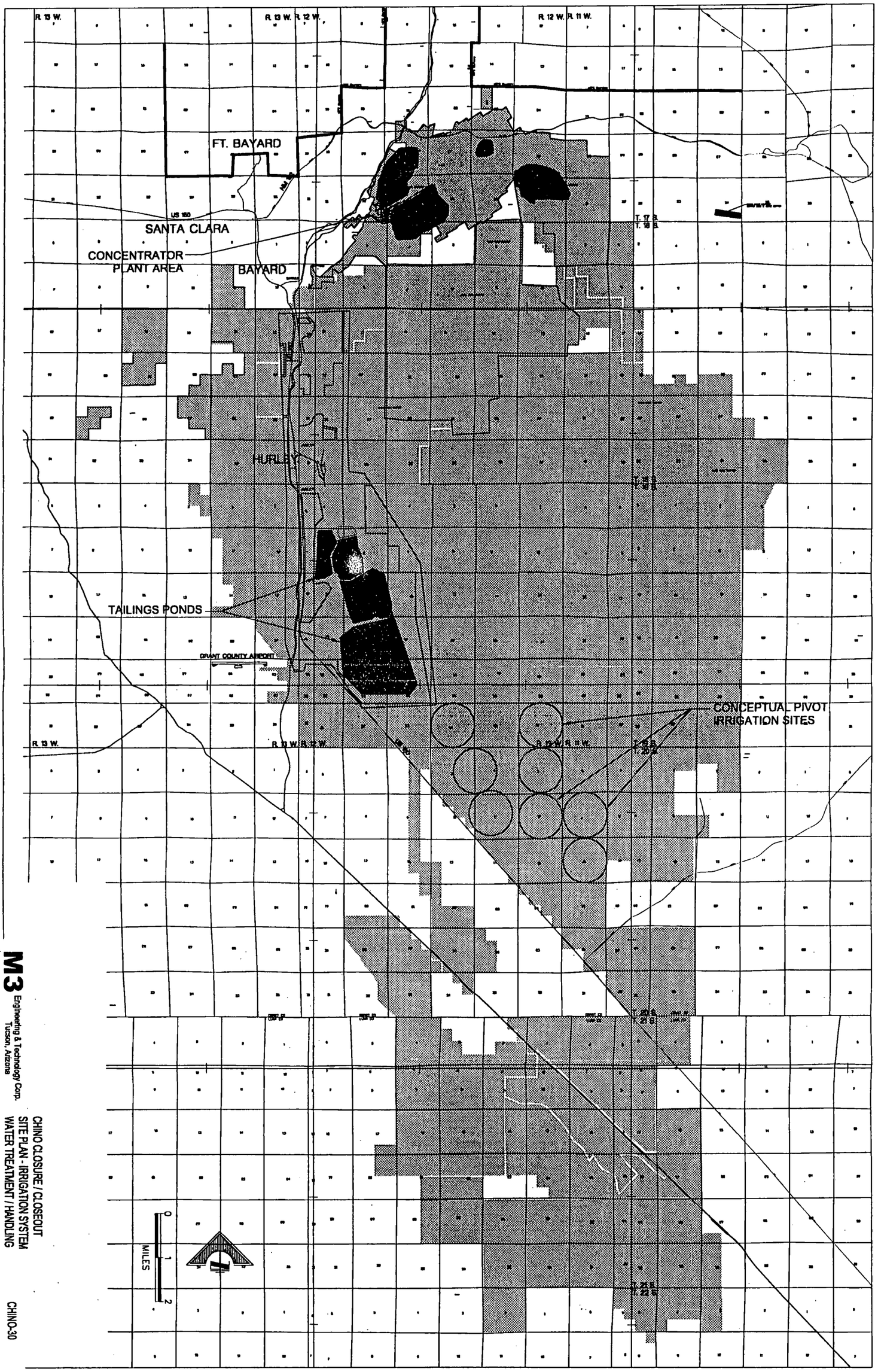
CHINO-28



M3 Engineering & Technology Corp.
Tucson, Arizona

CHINO CLOSURE / CLOSEOUT
SITE PLAN
WATER TREATMENT / HANDLING

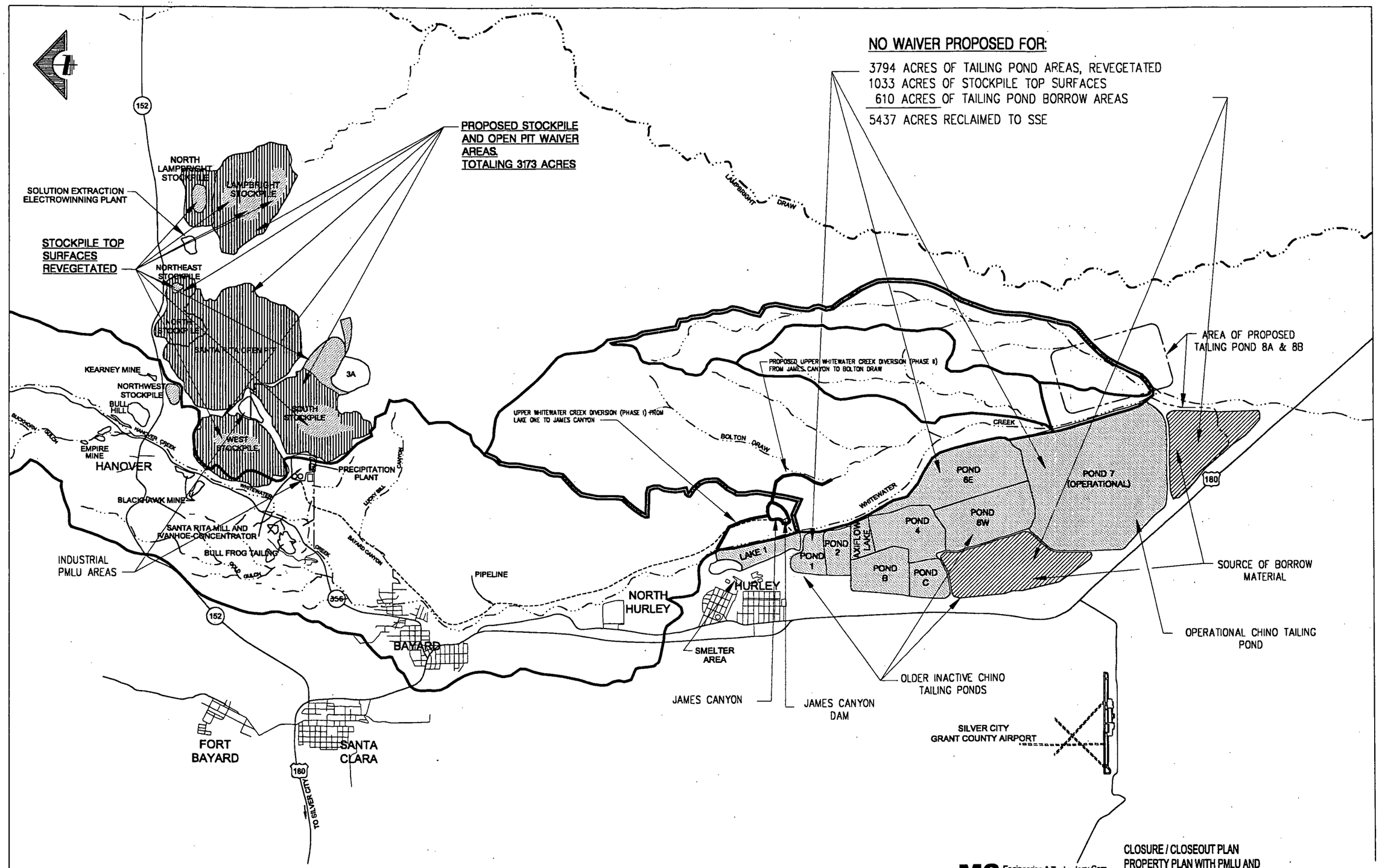
CHINO-29



M3 Engineering & Technology Corp.
Tucson, Arizona

CHINO CLOSURE / CLOSEOUT
SITE PLAN - IRRIGATION SYSTEM
WATER TREATMENT / HANDLING

CHINO-30



M3 Engineering & Technology Corp. Tucson, Arizona

CLOSURE / CLOSEOUT PLAN
PROPERTY PLAN WITH PMLU AND WAIVER AREA DESIGNATIONS

CHINO-31

NAME: O:\2000\00315\Chino\Civil\CHINO-31.dwg LAST REV: LAST UPDATE: MAR 14, 2001 TIME: 2:54 PM BY: cr358 PLOT SCALE: 1:1

CHINO CLOSURE/CLOSEOUT
APPENDIX C

FACILITY CHARACTERISTICS FORMS

Lake One

Tailing Pond 1

Tailing Pond 2

Axiflo Lake

Tailing Pond B

Tailing Pond C

Tailing Pond 4

Tailing Pond 6 West

Tailing Pond 6 East

Tailing Pond 7

South Stockpile

Northeast Stockpile

Upper South Stockpile

Northwest Stockpile

North Stockpile

East Pit Access

Main Lampbright Stockpile

South Lampbright Stockpile

North Lampbright Stockpile

Southwest Lampbright Stockpile

Groundhog No. 5 Stockpile

West Stockpile

Santa Rita Open Pit

Chino Closure/Closeout
Facility Characteristics Form

Lake One

Function	Inactive Historically used for water storage and flood retention
Location Characteristics	Major channel to east (i.e., Whitewater Creek) Regional depth to groundwater is less than 75 feet, direction of flow is south Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	Earthen dam
Physical Characteristics	Fine to coarse grained Low to medium saturated hydraulic conductivity
Leach Status	Not applicable
Existing and Planned Engineering Measures	Existing Whitewater Creek Diversion, smelter stormwater collection pond, planned upper Whitewater Creek diversion

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	220	220
Item	Capital Cost	Capital Cost
Cover Material	$976,690	$1,831,722
Outslope Adjustment	$0	$0
Divots, Seed & Mulch	$273,812	$271,023
Channels, Conduits & Berms	$128,469	$127,160
Capital Cost Totals	$1,378,971	$2,229,906
Capital Cost/Acre	$6,268	$10,136

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	100 / 0	100 / 0
Revegetation Area %	100	100
Cover Material (Gila Cong. or Rhyolite)	Gila Cong.	Gila Cong.

Chino Closure/Closeout
Facility Characteristics Form

Tailing Pond 1

Function	Tailing deposition No active tailing deposition since 1953 Repository for tailing spill cleanup material through present
Location Characteristics	Major channel to east (i.e., Whitewater Creek) Runon from Tailing Pond 2 and possibly from west Regional depth to groundwater is greater than 75 feet, direction of flow is South Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	Upstream
Physical Characteristics	Fine to coarse grained Low to medium saturated hydraulic conductivity
Leach Status	Not applicable
Existing and Planned Engineering Measures	Periodic grading of east outslope along Whitewater Creek Planned Upper Whitewater Creek diversion and dust cover capping

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	159	159
Item	Capital Cost	Capital Cost
Cover Material	$812,416	$1,399,090
Outslope Adjustment	$39,743	$39,338
Divots, Seed & Mulch	$197,891	$195,876
Channels, Conduits & Berms	$90,926	$90,000
Capital Cost Totals	$1,140,976	$1,724,303
Capital Cost/Acre	$7,176	$10,845

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	100 / 0	100 / 0
Revegetation Area %	100	100
Cover Material (Gila Cong. or Rhyolite)	Gila Cong.	Gila Cong.

Chino Closure/Closeout
Facility Characteristics Form

Tailing Pond 2

Function	Tailing deposition Inactive since 1944
Location Characteristics	Major channel to east (i.e., Whitewater Creek) Runon from Tailing Pond B, runoff to Axiflo Lake Depth to regional groundwater is greater than 75 feet, direction of flow is South Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	Upstream
Physical Characteristics	Fine to coarse grained Low to medium saturated hydraulic conductivity
Leach Status	Not applicable
Existing and Planned Engineering Measures	Planned Upper Whitewater Creek diversion, dust cover capping

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	150	150
Item	Capital Cost	Capital Cost
Cover Material	$793,648	$1,339,207
Outslope Adjustment	$47,691	$47,205
Seepage Water Treatment	N/A	N/A
Interceptor Well & Pit Water Treatment	N/A	N/A
Runoff Water Treatment	N/A	N/A
Divots, Seed & Mulch	$186,690	$184,788
Channels, Conduits & Berms	$85,286	$84,417
Capital Cost Totals	$1,113,314	$1,655,618
Capital Cost/Acre	$7,422	$11,037

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	100 / 0	100 / 0
Revegetation Area %	100	100
Cover Material (Gila Cong. or Rhyolite)	Gila Cong.	Gila Cong.

Chino Closure/Closeout
Facility Characteristics Form

Axiflo Lake

Function	Storage of TDRW, Tailing Pond 7 interceptor system discharge, and Bolton Wellfield production well water Active since 1919
Location Characteristics	Runon from Tailing Ponds 2, B, and 4 No downstream issues Depth to groundwater is greater than 75 feet, direction of flow is South Low upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	Earthen dam
Physical Characteristics	Not applicable
Leach Status	Not applicable
Existing Engineering Measures	None

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	91	91
Item	Capital Cost	Capital Cost
Cover Material	$417,025	$766,697
Outslope Adjustment	$4,769	$4,721
Divots, Seed & Mulch	$113,259	$112,105
Channels, Conduits & Berms	$52,909	$52,370
Capital Cost Totals	$587,961	$935,893
Capital Cost/Acre	$6,461	$10,285

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	100 / 0	100 / 0
Revegetation Area %	100	100
Cover Material (Gila Cong. or Rhyolite)	Gila Cong.	Gila Cong.

Chino Closure/Closeout
Facility Characteristics Form

Tailing Pond B

Function	Tailing deposition Inactive since 1993
Location Characteristics	No upstream issues, runoff to Tailing Pond 2 and Axiflo Lake Regional depth to groundwater is greater than 75 feet, direction of flow is South Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	Upstream
Physical Characteristics	Fine to coarse grained Low to medium saturated hydraulic conductivity
Leach Status	Not applicable
Existing Engineering Measures	Dust cover capping

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	238	238
Item	Capital Cost	Capital Cost
Cover Material	$1,313,965	$2,162,201
Outslope Adjustment	$95,382	$94,411
Divots, Seed & Mulch	$296,215	$293,198
Channels, Conduits & Berms	$215,070	$212,879
Capital Cost Totals	$1,920,631	$2,762,688
Capital Cost/Acre	$8,070	$11,608

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	100 / 0	100 / 0
Revegetation Area %	100	100
Cover Material (Gila Cong. or Rhyolite)	Gila Cong.	Gila Cong.

Chino Closure/Closeout
Facility Characteristics Form

Tailing Pond C

Function	Tailing deposition Inactive since 1993
Location Characteristics	No upstream issues, no downstream issues Depth to regional groundwater is greater than 75 feet, direction of flow is South Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	Upstream
Physical Characteristics	Fine to coarse grained Low to medium saturated hydraulic conductivity
Leach Status	Not applicable
Existing Engineering Measures	Dust cover capping

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	158	158
Item	Capital Cost	Capital Cost
Cover Material	$959,914	$1,496,120
Outslope Adjustment	$95,382	$94,411
Divots, Seed & Mulch	$196,647	$194,644
Channels, Conduits & Berms	$332,939	$329,547
Capital Cost Totals	$1,584,881	$2,114,722
Capital Cost/Acre	$10,031	$13,384

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	100 / 0	100 / 0
Revegetation Area %	100	100
Cover Material (Gila Cong. or Rhyolite)	Gila Cong.	Gila Cong.

Chino Closure/Closeout
Facility Characteristics Form

Tailing Pond 4

Function	Tailing deposition Inactive since 1988 Temporary disposal of excess water
Location Characteristics	No upstream issues, runoff to Axiflo Lake and Tailing Ponds 6 West and 6 East Regional depth to groundwater is greater than 75 feet, direction of flow is South Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	Upstream
Physical Characteristics	Fine to coarse grained Low to medium saturated hydraulic conductivity
Leach Status	Not applicable
Existing Engineering Measures	Dust cover capping

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	362	362
Item	Capital Cost	Capital Cost
Cover Material	$1,795,450	$3,146,463
Outslope Adjustment	$69,947	$69,234
Divots, Seed & Mulch	$450,545	$445,956
Channels, Conduits & Berms	$385,308	$381,384
Capital Cost Totals	$2,701,250	$4,043,037
Capital Cost/Acre	$7,462	$11,169

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	100 / 0	100 / 0
Revegetation Area %		
Cover Material (Gila Cong. or Rhyolite)	Gila Cong.	Gila Cong.

Chino Closure/Closeout
Facility Characteristics Form

Tailing Pond 6 West

Function	Tailing deposition Inactive since 1961
Location Characteristics	Runon from Tailing Pond 4, runoff to Tailing Pond 7 Regional depth to groundwater is greater than 75 feet, direction of flow is South Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	Upstream
Physical Characteristics	Fine to coarse grained Low to medium saturated hydraulic conductivity
Leach Status	Not applicable
Existing Engineering Measures	Outslope modification project, dust cap cover

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	425	425
Item	Capital Cost	Capital Cost
Cover Material	$2,256,831	$3,797,429
Outslope Adjustment	$136,714	$135,322
Divots, Seed & Mulch	$528,955	$523,567
Channels, Conduits & Berms	$241,566	$239,106
Capital Cost Totals	$3,164,067	$4,695,424
Capital Cost/Acre	$7,445	$11,048

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	100 / 0	100 / 0
Revegetation Area %	100	100
Cover Material (Gila Cong. or Rhyolite)	Gila Cong.	Gila Cong.

Chino Closure/Closeout
Facility Characteristics Form

Tailing Pond 6 East

Function	Tailing deposition Inactive since 1988 Temporary disposal of excess water
Location Characteristics	Runon from Tailing Pond 4, runoff to Tailing Pond 7 Regional depth to groundwater is greater than 75 feet, direction of flow is South Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	Upstream
Physical Characteristics	Fine to coarse grained Low to medium saturated hydraulic conductivity
Leach Status	Not applicable
Existing Engineering Measures	Outslopes modification project, dust cap cover

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	428	428
Item	Capital Cost	Capital Cost
Cover Material	$2,210,721	$3,780,265
Outslope Adjustment	$114,458	$113,293
Divots, Seed & Mulch	$532,688	$527,263
Channels, Conduits & Berms	$360,802	$357,128
Capital Cost Totals	$3,218,670	$4,777,948
Capital Cost/Acre	$7,520	$11,163

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	100 / 0	100 / 0
Revegetation Area %	100	100
Cover Material (Gila Cong. or Rhyolite)	Gila Cong.	Gila Cong.

Chino Closure/Closeout
Facility Characteristics Form

Tailing Pond 7

Function	Tailing deposition Active since 1988
Location Characteristics	Major channel to east (i.e., Whitewater Creek) Runon from Tailing Pond 6 East and 6 West, inflow from groundwater interceptor wells, no downstream issues, TDRW to Axiflo Lake Regional depth to groundwater is greater than 75 feet, direction of flow is South Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	Upstream, cyclone application
Physical Characteristics	Fine to coarse grained Low to medium saturated hydraulic conductivity
Leach Status	Not applicable
Existing Engineering Measures	Interceptor well system, seepage collection sump, 1988 and 1998 Whitewater Creek diversions, dust cover capping on outslope

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	1,563	1,563
Item	Capital Cost	Capital Cost
Cover Material	$8,501,995	$14,112,266
Outslope Adjustment	$580,241	$574,331
Divots, Seed & Mulch	$1,945,308	$1,925,495
Channels, Conduits & Berms	$2,027,206	$2,006,559
Capital Cost Totals	$13,054,750	$18,618,651
Capital Cost/Acre	$8,352	$11,912

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	100 / 0	100 / 0
Revegetation Area %	100	100
Cover Material (Gila Cong. or Rhyolite)	Gila Cong.	Gila Cong.

Chino Closure/Closeout
Facility Characteristics Form

South Stockpile

Function	Rock stockpile
Location Characteristics	Southwest of Main Pit Possible runon from South Stockpile A plus undisturbed hillslope to south No downstream issues Regional depth to groundwater is less that 75 feet, direction of flow is to Whitewater Creek and Main Pit Limited upwind fetch, limited to downwind fetch In Mimbres Basin drainage
Construction Method	End dumped
Physical Characteristics	Range in size from very fine (silt and clay) to very large boulders High saturated hydraulic conductivity
Leach Status	No leach on extreme southern and northeast portions, Leach on remainder
Existing Engineering Measures	PLS and stormwater collection system, toe control systems All top surfaces bermed

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	635	648
Item	Capital Cost	Capital Cost
Cover Material	$1,917,377	$7,077,741
Outslope Adjustment	N/A	$37,990,655
Divots, Seed & Mulch	$253,916	$904,629
Channels, Conduits & Berms	$405,143	$796,394
Capital Cost Totals	$2,576,436	$46,769,418
Capital Cost/Acre	$4,057	$72,175

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	32 / 68	100 / 0
Revegetation Area %	32	100
Cover Material (Gila Cong. or Rhyolite)	Rhyolite	Rhyolite

Chino Closure/Closeout
Facility Characteristics Form

Northeast Stockpile

Function	Ore stockpile
Location Characteristics	
Construction Method	End dumped
Physical Characteristics	Range in size from very fine (silt and clay) to very large boulders High saturated hydraulic conductivity
Leach Status	Non-leach
Existing Engineering Measures	Stormwater collection system, toe control systems Interceptor wells, all top surfaces bermed

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	77	111
Item	Capital Cost	Capital Cost
Cover Material	$232,256	$1,521,898
Outslope Adjustment	N/A	$2,763,880
Divots, Seed & Mulch	$23,482	$137,416
Channels, Conduits & Berms	$51,830	$12,137
Capital Cost Totals	$307,568	$4,435,331
Capital Cost/Acre	$3,994	$39,958

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	6 / 94	100 / 0
Revegetation Area %	6	100
Cover Material (Gila Cong. or Rhyolite)	Rhyolite	Rhyolite

Chino Closure/Closeout
Facility Characteristics Form

Upper South Stockpile
(Borrow Area ~ 50,000,000 cy)

Function	Rock stockpile
Location Characteristics	South of Main Pit, southeast of South Stockpile A Runon from hillslopes Reservoir 3A to the south No downstream issues Regional depth to groundwater is greater than 75 feet, direction of flow is to the Main Pit Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	End dumped
Physical Characteristics	Range in size from very fine (silt and clay) to very large boulders High saturated hydraulic conductivity
Leach Status	Non-leach
Existing Engineering Measures	Toe control systems All top surfaces bermed

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	152	152
Item	Capital Cost	Capital Cost
Cover Material	$25,829	$25,565
Outslope Adjustment	N/A	N/A
Divots, Seed & Mulch	$11,201	$187,252
Channels, Conduits & Berms	$55,042	$14,768
Capital Cost Totals	$92,072	$227,586
Capital Cost/Acre	$606	$1,497

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	6 / 94	100 / 0
Revegetation Area %	6	100
Cover Material (Gila Cong. or Rhyolite)	N/A	N/A

Chino Closure/Closeout
Facility Characteristics Form

Northwest Stockpile
(Borrow Area ~ 2,000,000 cy)

Function	Rock stockpile
Location Characteristics	Northwest of Main Pit No upstream issues No downstream issues Regional depth to groundwater is greater than 75 feet, direction of flow is to Hanover Creek and Main Pit Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	End dumped
Physical Characteristics	Range in size from very fine (silt and clay) to very large boulders High saturated hydraulic conductivity
Leach Status	Non-leach
Existing Engineering Measures	Toe control systems All top surfaces bermed

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	20	20
Item	Capital Cost	Capital Cost
Cover Material	$57,397	$56,812
Outslope Adjustment	N/A	N/A
Divots, Seed & Mulch	$24,892	$24,638
Channels, Conduits & Berms	$19,073	$32,818
Capital Cost Totals	$101,362	$114,268
Capital Cost/Acre	$5,068	$5,713

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	100 / 0	100 / 0
Revegetation Area %	100	100
Cover Material (Gila Cong. or Rhyolite)	N/A	N/A

Chino Closure/Closeout
Facility Characteristics Form

North Stockpile

Function	Rock/ore stockpile
Location Characteristics	North of Main Pit No upstream issues No downstream issues Regional depth to groundwater is less than 15 feet to greater than 200 feet, direction of flow is toward Main Pit Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	End dumped
Physical Characteristics	Range in size from very fine (silt and clay) to very large boulders High saturated hydraulic conductivity
Leach Status	Non-leach
Existing Engineering Measures	Stormwater collection system, toe control systems All top surfaces bermed

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	20	27
Item	Capital Cost	Capital Cost
Cover Material	$67,140	$315,184
Outslope Adjustment	N/A	0
Divots, Seed & Mulch	$6,223	$24,638
Channels, Conduits & Berms	$9,642	$8,204
Capital Cost Totals	$83,005	$348,026
Capital Cost/Acre	$4,150	$12,890

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	65 / 35	100 / 0
Revegetation Area %	65	100
Cover Material (Gila Cong. or Rhyolite)	Rhyolite	Rhyolite

Chino Closure/Closeout
Facility Characteristics Form

East Pit Access

Function	Rock stockpile, serves as access to southeastern portion of the open pit
Location Characteristics	East of Upper South stockpile Runon from hillslopes Reservoir 9A to the southwest No downstream issues Regional depth to groundwater is greater than 75 feet, direction of flow is to the Main Pit Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	End-dump
Physical Characteristics	Range in size from very fine (silt and clay) to very large boulders High saturated hydraulic conductivity
Leach Status	Non-leach
Existing Engineering Measures	Runon controls, berming on top surface

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	45	45
Item	Capital Cost	Capital Cost
Cover Material	$67,140	$691,409
Outslope Adjustment	N/A	$0
Divots, Seed & Mulch	$6,223	$55,437
Channels, Conduits & Berms	$17,764	$8,204
Capital Cost Totals	$91,127	$755,050
Cost/Acre	$2,025	$16,779

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	11 / 89	100 / 0
Revegetation Area %	11	100
Cover Material (Gila Cong. or Rhyolite)	Rhyolite	Rhyolite

Chino Closure/Closeout
Facility Characteristics Form

Main Lampbright Stockpile

Function	Ore stockpile
Location Characteristics	East of Main Pit North Diversion Channel to the north Pre-existing downstream drainage into Lampbright Draw Regional depth to groundwater is less than 5 feet to greater than 100 feet, direction of flow is to Lampbright Draw and Main Pit Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	End dumped Top surface bermed for leaching
Physical Characteristics	Range in size from very fine (silt and clay) to very large boulders High saturated hydraulic conductivity
Leach Status	Leach
Existing Engineering Measures	PLS and stormwater collection system, toe control systems, North Diversion Channel All top surfaces bermed

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	352	452
Item	Capital Cost	Capital Cost
Cover Material	$2,300,581	$7,052,695
Outslope Adjustment	N/A	$18,490,385
Divot, Seed & Mulch	$213,232	$557,599
Channels, Conduits & Berms	$282,861	$525,379
Capital Cost Totals	$421,855	$26,626,058
Capital Cost/Acre	$7,945	$58,907

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	49 / 51	100 / 0
Revegetation Area %	49	100
Cover Material (Gila Cong. or Rhyolite)	Rhyolite	Rhyolite

Chino Closure/Closeout
Facility Characteristics Form

South Lampbright Stockpile

Function	Ore stockpile
Location Characteristics	Southern extension of Main Lampbright stockpile No upstream issues Pre-existing downstream drainage into Lampbright Draw Regional depth to groundwater is less than 5 feet to greater than 100 feet, direction of flow is to Lampbright Draw and Main Pit Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	End dumped Top surface bermed for leaching
Physical Characteristics	Range in size from very fine (silt and clay) to very large boulders High saturated hydraulic conductivity
Leach Status	Leach
Existing Engineering Measures	PLS and stormwater collection system, toe control systems All top surfaces bermed

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	202	219
Item	Capital Cost	Capital Cost
Cover Material	$1,258,276	$4,102,051
Outslope Adjustment	N/A	$16,726,077
Divots, Seed & Mulch	$116,625	$328,967
Channels, Conduits & Berms	$166,579	$389,014
Capital Cost Totals	$1,541,479	$21,546,109
Capital Cost/Acre	$7,631	$98,384

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	46 / 54	100 / 0
Revegetation Area %	46	100
Cover Material (Gila Cong. or Rhyolite)	Rhyolite	Rhyolite

Chino Closure/Closeout
Facility Characteristics Form

North Lampbright Stockpile

Function	Ore stockpile
Location Characteristics	Northern extension of Main Lampbright stockpile No upstream issues Downstream drainage into Lampbright Draw Regional depth to groundwater is less than 5 feet to greater than 100 feet, direction of flow is to Lampbright Draw and Main Pit Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	End dumped
Physical Characteristics	Range in size from very fine (silt and clay) to very large boulders High saturated hydraulic conductivity
Leach Status	Leach
Existing Engineering Measures	PLS and stormwater collection system, toe control systems Interceptor wells, all top surfaces bermed

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	172	239
Item	Capital Cost	Capital Cost
Cover Material	$2,364,995	$3,731,794
Outslope Adjustment	N/A	$1,674,877
Divots, Seed & Mulch	$219,202	$268,808
Channels, Conduits & Berms	$187,605	$258,830
Capital Cost Totals	$2,771,802	$5,934,309
Capital Cost/Acre	$16,115	$24,830

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	87 / 13	100 / 0
Revegetation Area %	87	100
Cover Material (Gila Cong. or Rhyolite)	Rhyolite	Rhyolite

Chino Closure/Closeout
Facility Characteristics Form

Southwest Lampbright Stockpile

Function	Rock stockpile
Location Characteristics	Southwest of Main Lampbright stockpile Runon from hillside to the west Pre-existing downstream drainage into Lampbright Draw (Tributary 1) Regional depth to groundwater is less than 5 feet to greater than 100 feet, direction of flow is to Lampbright Draw Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	End dumped
Physical Characteristics	Range in size from very fine (silt and clay) to very large boulders High saturated hydraulic conductivity
Leach Status	Non-leach
Existing Engineering Measures	Bermed, graded, and watered for dust control

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	99	112
Item	Capital Cost	Capital Cost
Cover Material	$347,615	$1,154,198
Outslope Adjustment	N/A	$4,385,942
Divots, Seed & Mulch	$49,665	$162,910
Channels, Conduits & Berms	$74,938	$30,709
Capital Cost Totals	$472,218	$5,733,759
Capital Cost/Acre	$4,770	$51,194

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	33 / 67	100 / 0
Revegetation Area %	33	100
Cover Material (Gila Cong. or Rhyolite)	Rhyolite	Rhyolite

Chino Closure/Closeout
Facility Characteristics Form

Groundhog No. 5 Stockpile

Function	Rock stockpile
Location Characteristics	South facing slope in Lucky Bill Canyon No upstream issues No downstream issues In Mimbres Basin drainage
Construction Method	End dumped
Physical Characteristics	Fine to coarse grained
Leach Status	Non-leach
Existing Engineering Measures	None

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	2	2
Item	Capital Cost	Capital Cost
Cover Material	$13,428	$32,939
Outslope Adjustment	N/A	$29,980
Divots, Seed & Mulch	$1,245	$2,464
Channels, Conduits & Berms	$1,279	$1,641
Capital Cost Totals	$15,951	$67,023
Capital Cost/Acre	$7,976	$33,512

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	100 / 0	100 / 0
Revegetation Area %	100	100
Cover Material (Gila Cong. or Rhyolite)	Rhyolite	Rhyolite

Chino Closure/Closeout
Facility Characteristics Form

West Stockpile

Function	Ore stockpile
Location Characteristics	West of Main Pit No upstream issues Pre-existing downstream drainage into Hanover and former Santa Rita Creeks Regional depth to groundwater is less than 75 feet, direction of flow is to Hanover Creek and Main Pit Medium upwind fetch, medium downwind fetch In Mimbres Basin drainage
Construction Method	End dumped
Physical Characteristics	Range in size from very fine (silt and clay) to very large boulders High saturated hydraulic conductivity
Leach Status	Eastern portion leach, western portion non-leach
Existing Engineering Measures	PLS and stormwater collection system, toe control systems Interceptor wells, all top surfaces bermed

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	531	621
Item	Capital Cost	Capital Cost
Cover Material	$1,732,866	$7,211,266
Outslope Adjustment	N/A	$22,700,395
Divots, Seed & Mulch	$175,202	$638,214
Channels, Conduits & Berms	$275,047	$700,786
Capital Cost Totals	$2,183,114	$31,250,661
Capital Cost/Acre	$4,111	$49,526

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	Yes	Yes
Topography (% sim. to surrounding/% modified)	27 / 73	87 / 13
Revegetation Area %	27	87
Cover Material (Gila Cong. or Rhyolite)	Rhyolite	Rhyolite

Chino Closure/Closeout
Facility Characteristics Form

Santa Rita Open Pit

Function	Mined pit
Location Characteristics	No upstream issues No downstream issues Main pit dewatering capture zone controls regional groundwater level and flow direction In Mimbres Basin drainage
Construction Method	Blasting, shoveling, and hauling rock in 50 foot benches
Physical Characteristics	Solid, intrusive, and skarn rocks with low primary permeability and medium fracture permeability
Leach Status	Not applicable
Existing Engineering Measures	Pit dewatering contains regional groundwater, toe control systems All perimeter runon bermed

Matrix of Costs
Capital Cost/Facility

	Proposed Plan	Comparison Case
Acres	1,894	1,894
Item	Capital Cost	Capital Cost
Cover Material	N/A	N/A
Outslope Adjustment	N/A	N/A
Divots, Seed & Mulch	N/A	N/A
Channels, Conduits & Berms	$421,855	$417,544
Capital Cost Totals	$421,855	$417,559
Capital Cost/Acre	$223	$220

Matrix of Technical Parameters

	Proposed Plan Compliance	Comparison Case Compliance
Structurally Stable (Yes or No)	Yes	Yes
Erosion Cover Sufficient (Yes or No)	N/A	N/A
Topography (% sim. to surrounding/% modified)	0 / 100	0 / 100
Revegetation Area %	N/A	N/A
Cover Material (Gila Cong. or Rhyolite)	N/A	N/A

CHINO CLOSURE/CLOSEOUT
APPENDIX D

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   - NMED Letter from Ms. Marcie Leavitt to Mr. Dennis Bartlett, President, Chino Mines Company, regarding Discharge plan amendment approval. July 9, 1998.
   - NMED Chino Screening-Level Overtopping Study dated January 31, 1999; Chino Tailing Pond Surface Water Study Closure/Closeout Plan dated March 31, 1999, dated February 17, 2000
   - NMED Incomplete Submittal: February 4, 2000 Stockpile Outslope Evaluation Submittal for the Chino, Tyrone, and Continental Mines, dated February 22, 2000
   - MMD Request for Information, Conceptual Tailing Pond Surface Water Study, Chino Mine, Chino Mines Company (Permit No. GR009RE), dated March 24, 2000
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   - MMD Request for Information, Interim Technical Standards for Revegetation Success, Chino Mine, Chino Mines Company (Permit No. GR009RE), dated May 8, 2000
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